COLONY OF MAURITIUS

Annual Report

OF THE

Department of Agriculture

1952

[PRICE : 75 CENTS]

PRINTED AND PUBLISHED BY
J. ELIEL FELIX, GOVERNMENT PRINTER,
PORT LOUIS, MAURITIUS
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COMMONWEALTH MYCOLOGICAL INSTITUTE
10 APR 1954

No. 33 of 1953

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Agricultural Policy

Agricultural Policy and the framework—as determined by the limitations of natural resources and by economic, social and demographic factors—within which this policy must operate have been described in some detail in the four preceding reports.

The main object of general policy is, of course, utilization of the island's land resources to the fullest possible extent. The means by which this aim is to be achieved are less generally agreed, since political considerations and opinions are necessarily involved. The present phase may be seen, against the background of political and constitutional development, as one in which machinery for the clear definition of land policy is in process of evolution.

As regards lands in public ownership, the future of the Crown Forest Lands has been decided but the policy which will guide future utilization of the other Crown Lands and the coastal belt of *Pas Géométriques* has not yet been defined. The Committee appointed to review the whole question of the administration and disposal of Crown Lands (other than the Forest Lands) and *Pas Géométriques* contiued to work during 1952, but its final report had not been completed by the end of the year.

Development of the tea and fibre industries are accepted items of policy. The general statement of tea policy, as defined by the Governor in Executive Council, was referred to the Tea Committee for advice as to the steps which should be taken to carry it out. This committee drafted a programme, in conformity with the definition, which has been submitted to Government for consideration. The steps which are being taken to aid the fibre industry are indicated in the section of this report which deals with that crop.

The Natural Resources Board continued to operate as an *ad hoc* advisory committee during 1952, while awaiting its own dissolution. It advised Government on a number of matters, including the recommendations of the Committee on Land Tenure, leasing of *Pas Géométriques* for fibre growing, and disposal of the Government Reserve Lands at Palmar ; but, as it is at present constituted, the committee cannot act as an effective instrument for the definition of land policy.

It is proposed to replace the Natural Resources Board by a Board of Agriculture, Fisheries and Natural Resources which will incorporate a number of the many boards and committees concerned with agricultural matters and co-ordinate the work of others, and which will act as a central body for formulating policy. A Bill to enable this organisation to be set up has been drafted, but it was still under discussion at the end of the year.

Another policy matter which requires mention is the future of the Sugarcane Research Station. For a number of years the work of this most important institution has been handicapped by the loss of senior scientific staff, who have not been replaced because Government has been unable to offer-sufficiently attractive salaries. The obvious remedy, which has been applied in similar cases in other countries, is the financiing of the organisation by the industry it serves and its removal from public service control. A committee was appointed to consider the implications of such a change and, following its report, a Bill was drafted to give effect to the Committee's proposals for the setting up of an independent Sugar Industry Research Organisation. In this case too political differences complicate the picture, particularly as regards the composition of the board of administration and the machinery for the appointment of staff. The Bill was still under discussion at the end of the year.

The appointment of a Liaison Officer to serve as a link between the Executive and Legislative Councils and the Department has proved in practice to be a very successful innovation. Dr. C. E. Millien, an Elected Member of the Legislative and a Member of the Executive Council, served as Liaison Officer in 1952. I am indebted to him for friendly and constructive collaboration throughout the year, and for the time and attention he has given unstintingly to agricultural affairs.

Staff of the Department of Agriculture

The senior posts in the Department are as follows:—

Director.
Deputy Director.
Deputy Director in charge of the Agricultural Division .
Chemist, Sugarcane Research Station*
Botanist, Sugarcane Research Station*
Plant Breeder, Sugarcane Research Station.
Senior Agricultural Officers (3 posts) * and †
Senior Veterinary Officer.
Animal Hsubandry Officer.
Veterinary Officer.
Plant Pathologist.
Sugar Technologist.
Chemical Engineer.
Registrar, Central Board.
Accountant, Central Board.
Chief Chemist and Assistant Registrar, Central Board.
Entomologist.
Associate Entomologist.
Chemist, Agricultural Chemistry Division.
Fisheries Officer.
Tea Officer‡
Land Settlement Officer‡

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* Vacant.
† One Included in Development and Welfare Estimates.
‡ Included in Development and Welfare Estimates.

There are 22 officers who are Assistant Heads of Divisions or of similar grade (including 4 Agricutural Officers), 47 Officers of the grade of Scientific Assistant or its equivalent (including Agricultural Instructors), 21 Overseers or officers of similar grade, 18 members of the Clerical Staff and 21 Laboratory Attendants and Messengers.

In the Fisheries Branch there are 7 Inspectors of three grades and 52 guards of two grades. The staff of the College of Agriculture consists of a Principal and Lecturer in Chemistry, three Lecturers and three Assistant Lecturers.

Staff Movements

The Deputy Director in charge of the Agricultural Division, Mr. A North Coombes, returned from overseas leave on the 29th April, 1952, and Mr. E. Lesur, Agricultural Officer, who was in charge of the Agricultural Division, reverted to his post on the same day.

Mr. J. R. Williams, Entomologist, left the Colony on overseas leave on the 8th January, 1952, and returned on the 10th September, 1952. During his absence, Mr. A. Moutia, Associate Entomologist, took charge of the Entomological Division.

Mr. E. Rochecouste, Acting Botanist, Sugarcane Research Station, returned on the 23rd August, 1952, from study leave in England where he qualified for the B.Sc., (Honours).

Mr. E. Limfat, B.Sc., A.C.G.I., was appointed Chemical Engineer in the Engineering Division on the 1st July, 1952.

Mr. S. Staub, Sugar Technologist, left the Colony on overseas leave on the 4th September, 1952, and Mr. E. Limfat, Chemical Engineer, was appointed Officer-in-Charge of the Engineering Division during Mr. Staub's absence.

Mr. J. G. S. Bennie, Animal Husbandry Officer, left on leave of absence to be spent in South Africa on the 16th April, 1952, and returned to the Colony on the 20th November, 1952. During his absence, Mr. T. Rivalland, Assistant Animal Husbandry Officer, was placed in charge of the Animal Husbandry Division.

Mr. J. Bett, Land Settlement Officer, was granted 6 weeks sick leave of absence which he spent in South Africa. He left the Colony on the 1st August and resumed on the 15th September, 1952.

Mr. D. N. Andrews was appointed Assistant Tea Officer and left London on the 2nd December, 1952.

The Sugar Industry

Dry conditions during the early period of cane growth and excessive rain and cloud throughout the maturation period reduced the sugar crop of 1952, which fell below the record achieved last year.

The dry spell started in December, 1951, and continued until the middle of February, delaying the beginning of active cane growth. For the remainder of the season of active growth rainfall was never much below normal, except in the western region during April and May. Unfortunately, excessive rain

fell throughout almost the whole of the season of cane maturation, precipitation being particularly heavy during July, November and December ; cloud amount was much greater than usual and maximum day temperatures were below normal. Consequently, conditions for ripening of the cane were poor.

Crushing started on 30th June ; by 11th August all 27 factories were in operation and the last factory finished crushing on 30th December. Some estates finished their crop late in December with an extraction of only 8 per cent.

The final yield of suger was 467,897 metric tons—compared with 483,904 in 1951 and an average of 452,000 for the three years 1949–51—from a harvested area of 172,389 acres. The average yield of cane, about 23·8 tons per acre, was considerably lower than last year and extraction only slightly higher. Consequently, the yield of sugar per acre was lower, to an extent which more than offset a further increase in the acreage of cane.

The price of sugar for 1952, as fixed by agreement between Commonwealth producers and the United Kingdom Government, was £38-10-0 per ton (96° polarisation). This is the last year of the old agreement, under which the United Kingdom purchases the whole of the export crop. The new Commonwealth Sugar Agreement, which was described in last year's report, comes into operation in 1953.

The only by-products of the sugar industry at present marketed are alcohol and molasses. Production of alcohol in 1952 amounted to 6,649,000 litres (94° G.L.) of which about two-thirds was exported. Distillers are now improving and modernising their equipment: one distillery has erected a new Barbet type B plant.

The Mauritius Molasses Company, which was formed in 1951 for the export of molasses, shipped 40,536 tons during 1952.

Manufacture of yeast tablets from distillery residues was discontinued but the Engineering Division of the Department continued to prepare tablets from food-yeast powder imported from Jamaica. These tablets are supplied mainly to the Medical and Education Departments for use in hospitals and schools. Demand increased considerably and production amounted to over 15½ million tablets. Erection of a plant for manufacture of food-yeast is under consideration.

As regards other by -products, the Engineering Division of the Department continued work on the fat and wax content of scums and erected a small pilot plant. The utilization of bagasse surplus to factory requirements is attracting increasing attention. Arrangements have been made for technical experts to visit the Colony and advise on the possibilities for the manufacture of paper, pulp, hardboard and other materials.

The Central Board, which regulates relations between planters and millers, continued to operate as a Division of the Department on the same basis as formerly. The Board held 26 meetings in 1952, for the purposes of assessing planters' sugars, hearing appeals against assessments, arbitrating in disputes between planters. millers and middlemen, and considering applications for changes in factory areas.

The Sugarcane Research Station

A separate Annual Report on the work of the Sugarcane Research Station is published and its activities during 1952 are only briefly summarised here.

There was very little improvement in the staff position and, in consequence, the amount and scope of research continued to be severely restricted.

Cane breeding work continued energetically. Arrowing was much less than last year and the fertility of the fuzz was abnormally low ; but sufficient seedlings were obtained to plant out nearly 21,000 in the experimental fields at Réduit, Pamplemousses and Hermitage.

One point which is assuming increasing importance in the cane breeding programme is the raising of a variety suited to the cool, wet uplands, which is also resistant to Chlorotic Streak disease. The Ebène cane, E.1/37, has been found to be very susceptible to the disease. This is unfortunate as in all other respects the cane is superior to M.134/32 under upland conditions.

Field trials with the Barbados varieties were continued and propagation plots of some of the better ones have been planted. Root pruning tests have shown that these canes are inferior to M.134/32 in their capacity to re-form a root system after attack by *Clemora smithi* and it is therefore to be expected that they will be more susceptible to this pest.

Four introduced varieties of cane were released from the quarantine greenhouse and introduced into variety trials, while nine new varieties were imported from abroad and are now being tested in quarantine.

The remaining experiments in the $3 \times 3 \times 3$ N.P.K. trials were harvested in sixth ratoons. The whole series shows that there is always a response to nitrogen fertilizers, that the response is higher in the older ratoons, and that the depressing effect of nitrogen applications on the sucrose content decreases with the age of the canes. On small planters' lands responses to phosphate and potash applications were generally obtained, but on estate lands there was usually no response to these fertilizers except in the super-humid region. Applications of lime usually gave no effect, a result which confirms those previously obtained.

The basalt trials continue to show a significant response to the larger applications of powdered basalt—182 tons per arpent. This result does not appear to be due to the lime or magnesia content of the basalt: it may be due to trace elements or to the effects of the application on the physical condition of the soil.

The Division of Botany has started investigations into the effects of the hormone type fertilizers on the physiology of cane, but no results are yet available. This Division is also working on the weeds which have so far proved resistant to weed-killers and some progress has been made in devising better methods for their control.

The Extension Service continues its efforts to improve the yield of cane from small planters' lands, and a good deal of success has been achieved. In addition to increasing use of organic-mercurial fungicides for sett treatment and adoption of better fertilizer practices, small planters are now showing a good deal of interest in weed-killers as a means of reducing the high cost of hand-weeding.

The College of Agriculture

Compared with most Colonies, Mauritius has quite a long history and tradition of agricultural education. As long ago as 1884 the Chamber of Agriculture conducted courses in Agricultural Chemistry, and at the end of the century Philippe Boname, Director of the *Station Agronomique,* was admitting to his laboratory young men for training as sugar chemists. From these beginnings there grew the School of Agriculture which, in the period 1923–25, was transformed into the present College of Agriculture.

The work of the College is fully described in a separate report prepared at the end of the academic year in April, and therefore only a brief reference is made to it here.

For twenty years the College was handicaped by lack of accommodation, because the Sugarcane Research Station which was established in 1930 was " temporarily " housed in the college building. It was not until 1950, when the new building for the Sugarcane Research Station was opened, that the cuckoo left the nest and its rightful occupant had a chance to expand.

The College, although a Division of the Department of Agriculture, is not financed from public funds but by an export duty on sugar. This duty was formerly 3 cents per 100 kilos of sugar but it has been increased, with the approval of the sugar industry's representatives, to 5 cents per 100 kilos—about nine pence per ton. There is an Advisory Board, on which the industry is strongly represented, which has a considerable say in the running of the College and the Association of Former Agricultural Students also takes a welcome and very constructive interest in its affairs.

The removal of the Sugarcane Research Station to its own building and the increase in Revenue has enabled the College to expand its work and usefulness. A greater number of students can now be accepted, including part-time students ; the syllabus of teaching has been revised, and a one-year course in tropical agriculture and cane cultivation has been started. This new short course, which is intensive and consists of practical field work from seven to ten each morning followed by lectures and demonstrations up to four in the afternoon, is intended primarily for the training of field supervisory staff for the sugar and other agricultural industries. The response showed that the course meets a very definite need.

In 1952, the number of students attending the College reached the record figure of 74. Of these, 32 were following the three-year Diploma course, 24 were taking the new Tropical Agriculture and Cane Cultivation course, 12 were part-time students following some of the lectures and practical classes, and 6 were taking Practical Chemistry for the B.Sc. (General) Degree of London University. Nine students were awarded the Diploma of the College, six of whom qualified for a Pass and three for an Honours Diploma. The Scholarship, which is awarded annually to the Laureate, was won by Mr. S. Lionnet, who is now studying Veterinary Science in the United Kingdom.

Examinations for the Certificate in sugar manufacture of the City and Guilds Institute of London were held in April: nine candidates passed, of whom eight were Diploma-holders of the College. Holders of the Diploma are eligible for the full Technological Certificate of this Institution.

In May, a very successful prize-giving ceremony was held, the second since this pleasant practice was resumed, at which prizes and diploma were presented by His Excellency Sir Hilary Blood.

Students of the Diploma course are required to pass an entrance examination. Eighteen candidates took the examination for entry to the 1952–53 session of whom 13 passed and were admitted.

The College has in the past made a very substantial contribution to the agricultural welfare of the Colony and it continues to do so. A large proportion of the technical and administrative personnel of the sugar industry, including Managers of the largest estates and factories, hold its diploma. The Department too depends on the College for a considerable proportion of its staff, and many of its senior scientists are former Laureates and studentship-holders of the College.

Fibre

The main fibre plant of Mauritius is the so-called Mauritius hemp or " Aloe " *(Furcraea gigantea)* which was probably introduced to the island about two centuries ago. A small quantity of sisal is also produced. Most of the " aloe " fibre is manufactured into sugar bags at the Government Sack Factory and the sisal is used for making cordage within the island or it is exported.

Most of the " aloe " fibre is still obtained by reaping the leaves of wild plants, but plantations are now being established and it is hoped to encourage the change to plantation production by means of Government loans.

Production of fibre has been gradually increasing and, stimulated by high prices and the shortage of jute, has practically doubled in the last four years. The amount produced in 1952 was 2,092 tons, 2,001 tons of " aloe " and 91 tons of sisal. The Sack Factory used 1,853 tons of fibre during the year and manufactured 1,143,000 bags (of 80 kilos capacity), 44,700 yards of filter press cloth and 41 tons of rope yarn. Fibre exports amounted to only 505 tons.

Three main measures have been taken, or are contemplated, to encourage the further development of this industry: enlargement of the factory to increase its productive capacity to 2½ million bags, the grant of loans to fibre producers, and the " Tripartite Agreement." The last is a draft marketing and price agreement between fibre and sugar producers and the factory which is intended to afford some measure of security and stability to the industry. The agreement was still under discussion and had not been completed by the end of the year. The factory enlargement programme, however, made good progress, though the building extensions had not been completed by the time new machinery arrived from the United Kingdom in December. The third measure has been put into effect by the passing of the Aloe Fibre Industry (Development) Ordinance, 1952, which provides a total of one and a half million rupees (£112,500) as loans to fibre producers for the establishment of plantations and the purchase of decorticating and other machinery.

Other Colonies have recently been showing considerable interest in the fibre industry of Mauritius and there have been many requests for information and planting material. The information has been gladly given but as the export of bulbils was prohibited many years ago planting material could not be sent. This prohibition has now been repealed, with the consent of the Chamber of Agriculture and the Hemp Producers Syndicate.

The Department is carrying out experiments on the behaviour of *Furcraea* under plantation conditions, with the object of finding the best and cheapest ways of establishing and maintaining plantations. Other fibre plants, kenaf *(Hibiscus cannabinus),* roselle *(H. sabdariffa)* and New Zealand hemp, are also under investigation. On the engineering side, decorticating machinery and methods and automatic feed devices are being studied. Accounts of the progress made during the year in these lines of work will be found in the reports of the Agricultural and Engineering Divisions.

Tea

Weather conditions were favourable for tea, especially during the first and last quarters of the year, and production again increased. The total output of made tea during 1952, from five factories one of which operated only for seven months, was 883,350 lb.—compared with 841,160 lb. in the previous year.

Permits were issued for the planting of a further 244 arpents* of tea, bringing the total area for which permits have been issued up to 3,318 arpents,† but many intending planters have not yet made use of their permits and the area actually in tea is probably 2,326 arpents‡ of which some 2,200§ arpents are in bearing. The average yield from the area in bearing was, therefore, about 400 lb. of made tea per arpent.

The slump in the world price of tea discouraged export and it was not until late in the year that a small quantity, 16,035 lb., was sent to the London auction sales.

The year was an anxious one for tea producers. Although local consumption is increasing, production was probably greater than the requirements of the local market and it was feared that the position would be aggravated by the " dumping " of cheap teas from abroad. The amount of tea imported during the year was 94,822 lb. which is almost double the amount imported during the previous year.

The Tea Committee, which held thirteen meetings during 1952, formulated proposals to meet the situation, including an increase in the margin of protection afforded by import duties and the operation of a fund, to be financed by a cess on all tea manufactured in the Colony and the revenue collected by the increased import duties, to subsidise export. The Committee also completed the draft of a general programme for the development of the tea industry, and gave attention to many other matters.

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* 253·76 acres ;
† 3,450·72 acres ;
‡ 2,419·04 acres ;
§ 2,288 acres

Good progress was made with the reconstruction of the four previously unsatisfactory tea factories. One of these factories, completely rebuilt and re-equipped, was opened in April and the reconstruction of the others was well advanced by the end of the year.

At the Tea Experiment Station, where there is now 36 acres of experimental tea, the first plantings came into bearing at 2½ years of age and plucking started in September. Yields promise to be excellent.

The future of tea in Mauritius depends on a remunerative export market and this can be achieved, against the handicap of relatively high costs especially for labour, only by means of high yields and quality. It is the intention of Government to lead the way in this direction, and it is hoped to demonstrate the possibilities on a convincing scale, by establishing at Midlands a commercial tea plantation of 500 acres. In spite of the still critical staff position in the Tea Division of the Department, planting was started at Midlands in 1952 and a large area was cleared for expansion. Great difficulty was experienced in obtaining seed from countries free of blister blight and this delayed progress, but eventually seed was obtained from Nyasaland which, transported by air freight, gave excellent results.

Tobacco

By the year 1867, when a tax was imposed on all land under tobacco, cultivation of this crop in Mauritius appears to have reached significant proportions. Since then almost continuous efforts have been made to expand and improve the industry and to find an export outlet for the leaf, but so far no remunerative export market has been found. This failure " is said to be due partly to the cost of cultivation, but mainly to the quality of the article produced, which is attributed by some to the mode of cultivation and by others to the unsuitability of the soil." The words I have quoted were written in 1890 ; they might just as appropriately have been written to-day.

The bulk of the tobacco produced in Mauritius is of the Amarello type which, although unacceptable on the United Kingdom market, is suited to local requirements ; but smaller quantities of the commercial varieties of flue-cured Virginia leaf—known in Mauritius as the " New Varieties "—are also grown. Soil and climatic conditions are not well suited to production of a flue-cured Virginia leaf of the type required by the United Kingdom market and recent experience has shown that buyers are interested only in the top grades of the " New Varieties."

Because of the failure to find an export outlet, tobacco growing in Mauritius has developed as a comparatively small but valuable local industry controlled by the Tobacco Board which licences growers, and buys, handles and sells the whole of the crop.

Owing to increased consumption of tobacco and depletion of stocks the Board decided to allocate a larger quantity than usual for production in 1952. The season was very favourable for Amarello, both flue-cured and air-cured, and the quantities of these types which were actually produced considerably exceeded the allocations ; but it was a poor season for the " New Varieties " which, as they were generally planted rather late, were adversely affected by cold weather.

The acreages planted in the 1951–52 season and the quantities of leaf delivered at the Tobacco Board's warehouse during 1952 were as folows: —

	*Area planted arpents**	*Acres*	*Quantity produced Kilos*
Flue-cured Amarello	364·30	(378 8)	349,044
Air-cured Amarello	257·58	(267·8)	245,904
Flue-cured "New Varieties"	205·47	(213·6)	53,685
	827·35	(860·2)	648,633

This total crop of nearly 1,427,000 lb. of leaf is a record for Mauritius. The handling of so large a crop put a heavy strain on the inadequate resources of the warehouse, and long periods of overtime had to be worked.

All sales of leaf tobacco (with the exception of a small quantity supplied to the Medical and Health Department) were made to the British American Tobacco Company (Mauritius) Ltd., now the only manufacturer in the Colony. The total amount sold was 506,986 kilos, having a value of Rs. 2,190,216. (£164,266-4/-).†

The quantities of leaf, both local and imported, used for manufacture in the Colony during 1952 and 1951 are shown in the table below: —

	1952	*1951*
Local leaf (Kilos) ...	451,360	406,581
Imported leaf (kilos)..	114,508	100.075
TOTAL ...	565,868	506,656

In order to keep interest alive in the possibility of export, and in spite of the shortage of stocks, the Board allocated 30,000 kilos of leaf for export in 1952, but to the end of the year no market had been found for this leaf. The Board also investigated the possibility of selling tobacco to Australia, with the co-operation of the Commonwealth Department of Commerce ; but once again buyers showed interest only in the top grades.

For some time the Board has been contemplating the erection of a new warehouse as it has been understood that its present premises, which are loaned by Government, may be required for other purposes. Towards the end of the year intimation was received that these premises should be vacated by the end of 1954. The Board is therefore taking steps, with the assistance of Government, to have the new warehouse built as soon as possible.

Departmental work on tobacco is reviewed in a later section of this report, and a full account of the working of the warehouse will be found in the annual report published by the Tobacco Board.

Food Crops

For reasons which were explained in last year's report, production of food crops has been declining in recent years. This tendency was arrested in 1952 as the following table shows. The table, which is condensed from reports of

*1 arpent = 1·04 acres.
†1 Rupee = 1/6d.

the Food Production Board, gives the total area† planted to maize, manioc (cassava), potatoes, sweet potatoes, arouille (taro), groundnuts and rice ; and the total weight (in metric tons) of these crops reaped in the last four seasons.

Season	*Area of Food Crops (arpents)*	*Total production (metric tons)*
1948–49	17,325 (18,018· 0 acres)	19,673
1949–50	13,180 (13,707· 2 ,,)	15,558
1950–51	8,852 (9,208·08 ,,)	14,469
1951–52	8,966 (9,324· 6 ,,)	15,075

The fact that acreage did not decline further, and in fact showed a small increase in 1952, is due in a considerable measure to the work of the Food Production Board. The Board operates a mechanical unit which clears, prepares and cultivates land for food crop producers at as low a cost as is consistent with economic operation. This service is very popular and the unit was fully employed during the year: indeed, the demand for land-clearing was so great as to throw an excessive strain on the heavy tractors.

The Board also runs demonstration plots and holds meetings of food-crop growers at which problems are discussed and advice given. This extension service is showing returns in higher yields. In 1952, yields of most food crops were again higher than in the previous year, due partly to favourable weather conditions in most parts of the island but also to better control of pests and diseases, more rational application of fertilizers and the use of better planting material.

The *effective* area under vegetables, which is not included in the figures given above, is believed to remain fairly constant at between 4,000 and 5,000 acres, but no reliable data are available for the multiplicity of small plots on which vegetables are grown. There is no real evidence of any serious decline in vegetable production, though fears on this score are often expressed.

The Engineering Division of the Department undertook, once again, the purchase and processing of groundnuts at the Richelieu Mill. In all, 216 tons of unshelled nuts were received at the mill and 152 tons of shelled and dried nuts were sent to the Innova factory for crushing.

The Agricultural Division of the Department carries out experimental work on food crops, vegetable and fruit production at stations representative of the main climatic regions of the island. In 1952, under conditions of acute staff shortage, the Division had to give much of its energies to the opening up and establishment of stations in accordance with the programme of expansion. An amount of the work done during the year, which included production and sale of 7,800 fruit tree seedlings and 1,708 kilos of vegetable seed, is given in the divisional report.

Livestock

The main features of the Island's livestock industry and the lines which departmental work is following are described in some detail in the last two reports.

† These figures represent *effective* acreages. The actual area in use is less as two or more crops are often grown on the same land during the year.

During 1952 considerable progress was made in expanding the work of the Animal Husbandry Extension Service, which was started in September last year. The principal objective of this service is to increase milk supply by raising the standard of husbandry among Indian cow-keepers who are the main producers. The initial popularity of the scheme continued ; indeed requests for assistance and advice were so numerous that the field staff was seriously overtaxed.

So far, the main results in the areas where the service is in operation are a marked improvement of the fertility rate and the saving of many milk cows which would otherwise have died or gone to the butcher. The high cost of concentrates remains a deterrent to better feeding. The Engineering Division of the Department produced 605 tons of concentrated feeding mixture in 1952 (compared with 455 tons in 1951), but a steep rise in the cost of local grain necessitated an increase in price and demand was less than had been expected. Nevertheless, a good many cow-keepers are adopting improved methods of calf rearing and the feeding of mineral supplements to their cows.

Breeding work was continued at the Palmar Station on the east coast of the Island. The first progeny of the recently introduced milk goats and Ongole cattle were offered for sale—but the numbers which can be offered are as yet very small. The heat tolerance tests at this station were completed, with interesting results which demonstrate the superiority of the local *creole* milk cow under coastal conditions.

The year was an exceptionally bad one for nostril fly and this pest caused serious mortality among sheep and goats in many parts of the island. At Palmar, the cross-bred Dorsian-Persian flock suffered severely, but the pure bred Dorsians were much less affected. Weekly dipping and an improved treatment with nasal drops brought the outbreak under control on the station.

At the Government Dairy, for the first time in nearly thirty years, no loss was caused by contagious abortion. In 1950, 23·5 per cent of the cows in calf aborted ; in 1951 this figure fell to 4·3 per cent, and in 1952 to zero. This is the happy result of the policy of routine agglutination testing, segregation and slaughter of reactors and inoculation of all heifer calves with S.19 vaccine. It is hoped to cleanse the herd completely of the disease within the next few years.

There was, however, a slight decrease in the output of milk from the Dairy, due to the high proportion of cows with their first calves now in the herd, and to the withdrawal of some of the highest-yielding animals for use in experiments.

Work on the pilot haymaking scheme, which was delayed last year because of shortage of staff and equipment, was resumed with the onset of the summer rains in 1952. Planting should begin early in the new year.

Land Settlement

The present land settlement scheme, which is carried out as one of the activities of the Department, comprises three pilot projects totalling about 600 acres. They are at Terre Rouge, Petit Sable and Richelieu.

So far most progress has been made at Petit Sable where tenants were settled in 1951. In 1952, these settlers obtained very satisfactory returns from their plantations of cane and food-crops. Work on this project during the year consisted mainly of improvements to roads, drainage and anti-erosion works and erection of houses for the settlers.

At Terre Rouge, rock removal and clearance of the dense scrub which covers the land were continued, and the first holdings were demarcated.

The Land Settlement Selection Committee begun the task of interviewing the 600 applicants for participation in the scheme and by the end of the year a first group of 56 settlers had been selected and provided with holdings. Provision of irrigation water which is essential for full land utilization in this very dry region, has, unfortunately, been delayed and it is unlikely that water will be available before the earlier part of 1954. Until then cultivation must be limited to the growing of food-crops during the summer rains.

The land at Richelieu intended for the third project has for some years been cultivated, under a verbal yearly lease, by tenants of the Food Production Board. Owing to difficulties which arose in connection with the removal of these tenants, or their absorption in the scheme, no progress with this project could be made during 1952. In order to regularise the position, the tenants were offered a written lease for a further season pending a final decision regarding the future of the land.

The three original projects are based on cultivation of food crops and sugarcane. Plans for a fourth project, in which the main emphasis is on dairying, have been prepared and submitted to Government for consideration.

Plant Pests and Diseases

The virus disease of cane known as Chlorotic Streak is attracting increasing attention and causing some anxiety. This disease can cause serious damage to canes planted on heavy, wet soils. The variety E.1/37, which was released last year, has been found to be particularly susceptible and the other varieties in cultivation are more or less susceptible. On three estates where investigations were made, poor stands of virgins, death of stubble in ratoons and low field yields were attributed to the effects of the disease.

Other cane diseases caused little or no damage during the year.

The Division of Entomology continued to give much attention to the biological control of the moth borers of cane and one introduction gave promising results. This is a parasite of the Maize Stalk Borer which was obtained from Kenya through the co-operation of the Department of Agriculture of that territory. The parasite was found to breed readily on Pink Borer larvae in the laboratory, and by the end of the year over 17,000 Laboratory-bred adults had been released. Parasitism of Pink Borer larvae in the field was subsequently observed.

Once again an attempt to introduce the giant toad *Bufo marinus* as a control for White Grub of cane has been unsuccessful. As in the case of the previous attempt, which has made in 1938, the toad failed to establish itself.

Other diseases and pests which received attention during the year include leaf roll of potatoes and the mites cause damage to tomatoes, potatoes, egg-plant and other vegetables. The incidence of leaf roll on different varieties of potatoes was studied, and a survey of the aphids which feed on the potato plant is being made in the hope of obtaining information about the vectors of the disease. A general study of the mites of agricultural importance has been started, and introductions of *Stethorus* spp. predators of the Red Spider which is a serious pest of tomatoes, were continued.

The biological control campaign against the weed bush *Cordia* was completed last year with the successful establishment of a leaf-eating beetle and a seed-destroying insect. During 1952, the position remained fairly stable, the surviving *Cordia* neither increasing nor decreasing very markedly.

The Island of Rodrigues

The islanders of Rodrigues—who are subsistence or semi-subsistence cultivators, fishermen and keepers of cattle and smallstock—had a fairly good season in 1952. Their main food crop is maize, of which a summer and a winter crop are grown. The summer crop was poor, owing to droughts in December and January, but the winter crop was good. Beans, garlic and onions—which are exported to Mauritius—yielded well.

Departmental work continued to be restricted by staff shortage and consisted mainly of trials of new and improved crop varieties—some of which gave very promising results—at the experimental station, and the construction of anti-erosion and water conservation works. Further investigations of guano deposits on the islets off the coast were made, and field trials demonstrated a response to this fertilizer which, it is hoped, may induce the Rodriguans to make use of it.

A livestock survey conducted by the Agricultural Officer showed increases in the numbers of cattle and sheep. Comparative figures for 1951 and 1952 are given below.

	1951	*1952*
Cattle	4,963	5,263
Goats	5,016	4,853
Sheep	3,189	3,842
Pigs	3,396	3,198

Towards the end of the year, the Deputy Director, Mr. Craig, left for Rodrigues to spend two months there on a general survey and inspection of departmental work. This is the first time that a senior officer of the Department has been able to spend more than a few days on the island, a fact which illustrates the difficulties of supervision.

W. ALLAN,
Director of Agriculture.

May, 1953.

Order of Appendices

Central Board.
Agricultural Division.
Veterinary Division.
Animal Husbandry Service.
Tea Division.
Entomological Division.
Botanical Division.
Chemical Division.
Engineering Division.
Land Settlement Division.
Legislation.

Central Board

In 1952, the Central Board was set up with Mr. N. Craig, Deputy Director of Agriculture, as Chairman, and the following members:—

Millers' Representatives :—
Adrien Wiehé, Esquire ; Factory Manager of Labourdonnais, S.E.
F. North Coombes, Esquire ; Manager of Mon Désert-Alma, S.E.

Big Planters' Representatives :—
M. Souchon, Esquire ; Manager of Espérance.
Hon. J. N. Roy, M.L.C.

Small Planters' Representatives :—
M. Burrenchobay, Esquire, M.B.E.,
Hon. D. Luckeenarain, M.L.C.

Meetings of the Central Board

The Board held 26 meetings during the year. The main business dealt with was as follows:—

9 meetings relative to application for changes of delimitation ;

3 meetings relative to disputes concerning delivery of canes ;

9 meetings relative to protests against assessment of planters' sugar ;

1 meeting relative to a dispute between planters and a middleman ;

4 meetings relative to general business.

Registration of Cane Contracts

8,546 contracts were received for registration during the year. The total number of contracts registered and in force for the 1952 crop amounted to 13,907 (out of which 12,020 were on a provisional basis) referring to 20,418 planters. The number of planters has increased from 19,170 in 1951 to 20,418 in 1952.

Sugar Factory Licences

Permits were delivered to the 27 factories which operated during the year. New plans were supplied to the factories whose areas had been altered.

Permits to Middlemen

The number of middlemen carrying on business had gradually dropped from 61 in 1939 to 29 in 1947 ; since then the number has been on the increase and 49 permits were delivered in 1952. After enquiry the Board has decided that middlemen shall be allowed to retain a maximum of two kilos of sugar per ton of cane for services rendered to planters.

Delimitation of Factory Areas

Twenty-seven applications for changes of delimitation of factory areas were received by the Board. In 4 cases the requests were granted.

Control of Cane Weighbridges

A total of 163 weighbridges dealing with planters' canes were tested during the year. On first inspection 134 were found to be correct, 23 had to be re-adjusted by the Inspector and 6 had to be re-examined. At the second examination 4 weighbridges were found correct and 2 had to be examined a third time. Nine old weighbridges which had been condemned by the Inspector were replaced by new and modern ones.

Two hundred and fifty-three (253) checks were carried out at the different weighbridges in the Island and 345 vehicles which had been previously weighed were re-weighed ; the weight of all vehicles were found to be correct.

Cost of Transport of Canes by Road and Tramway

The average cost of transport by road for 1951 was found to be the same as that for 1950, i.e., 69 cents* per ton mile.

Such is not the case for transport by tramway, the average cost of which has increased by 13 cents† on the preceding year. It is now Rs. 1.05‡ per ton mile. This increase follows a marked rise in the price of coal, a change in the method of computing depreciation and a departure from the method of calculating overheads chargeable to tramway.

Cost of Production

Early in 1952, figures for the 1951 crop were asked from millers to enable cultivation cost, manufacturing cost and the profit on planters' canes to be ascertained. But only 13 millers have sent in their figures. The delay entailed in computing costs is unavoidable under present circumstances owing to the fact that millers are closing their books on the 31st March, 30th April or 30th June. Thus, for the 1951 crop, figures for certain factories were only available at the end of September. If all millers were to close their books on the 31st December, this would greatly help to compute costs soon after a crop. Further the working out of the cost of production would be undertaken at such period as to leave the fourth quarter of the year exclusively for the computation of the cost of transport.

With the arrival of an Accountant from overseas, the accounting staff will be more adequate, and it is hoped that it will be possible to examine yearly figures and to compute costs of all millers and of a representative number of planters. To carry out fruitful work, however, it is undoubtedly essential that both millers and planters should show more co-operation.

*About 1/—
†About 2d
‡About 1/7—

Cane Testing

The year under review was the busiest one yet experienced by the cane-testing service. A total of 6,903 sucrose-content tests were carried out at 25 sugar factories manipulating planters' canes. The canes supplied by 162 individual or group of planters were tested separately.

In addition to the Chief and Assistant Chemist, 15 temporary Cane-testers were employed for the crop. Of these only three were qualified agricultural chemists and the other twelve had to be trained to perform the various chemical operations involved.

As a whole, the work went on fairly smoothy. Some difficulty was experienced at a few factories due to chronic shortage of cane. On the other hand, the high crushing rate of a number of factories has created a number of problems relative to the delivery and grouping of planters' canes for tests. At many factory yards the space available for stacking cane and for general traffic is strictly limited ; important improvements are essential, if the number of tests is to be increased so as to give satisfaction to all planters who desire to obtain a separate test for their own canes.

Full-time testers were stationed at three factories. Each of the other cane testers worked at two factories. In only one case was it necessary to test cane at night. Should it become necessary in future to test planters' cane regularly at night accommodation at or near the factory will have to be provided for the cane tester.

The quality of the cane supplied to the factories has again deteriorated compared with the previous year, judging by the proportion of straw and " white tops " contained. The effect of the " white tops " especially on the sucrose content is disastrous. The average extraction for the whole island was 11·43 as compared with 11·12 in 1951.

Assessment of Planters' Sugar

As mentioned in the preceding report, the planters appealed against the decision of the Supreme Court concerning the interpretation of Clause 6(2) of the Sale of Canes (Control) Ordinance. The case was heard by the Privy Council and the appeal was dismissed. The decision of the Supreme Court was to the effect that the Central Board is empowered to give to planters more than or less than two-thirds of their extraction whenever the Board is satisfied that such an action is equitable.

Six millers objected to the awards made by the Board for the 1951 crop. The Planters' Association of Mauritius, 54 Co-operative Credit Societies and 200 individual planters also lodged protests, the main reason which caused the planters to protest was that an abnormally low extraction (due to weather conditions) was obtained in 1951.

R. AVICE,
Registrar, Central Board.

Agricultural Division

Experiment Stations

(a) Central Experiment Station, Réduit. The land made available from Government House Grounds was taken over. Four acres were cleared of stones and deep-prepared with heavy mechanical equipment.

One thousand eight hundred and four feet of concrete irigation canals were constructed in continuation of the plan to equip the whole station with a proper network of surface irrigation channels. The construction of the stone boundary wall continued over a length of 2,305 feet.

Small scale experiments on more or less the same lines as the last three or four years were carried out with ground provisions, maize, groundnuts, pine-apples and a number of crops of lesser importance. In view of the extension of the old stations and the opening of two new stations (Richelieu in 1951 and Curepipe at the end of this year), much of the land available at the Central Experiment Station was put to the production of planting material.

(b) Richelieu Experiment Station. This is now the largest of the stations under the Division's control. It is used for tobacco, fibre, foodcrops and forage plants. Tobacco and fibre are reported upon later in this report. As regards the section devoted to food and fodder crops, it was taken over in 1951. Ultimately these and tobacco will be integrated into an appropriate rotation. The chief work done so far has been the provision of water supply—a new reservoir of 28,500 cubic feet capacity was constructed this year—and the preparation of about 12 acres of land with heavy machines prior to sowing early in 1953. Two trials with potato and one or two others with other crops were harvested. Plans were made for offices, store rooms and an equipment shed which will be constructed next year.

(c) Curepipe Experiment Station. This is a new experimental area in the high rainfall district, opened with the view of finding out if the lands in that part of the Island can be more profitably utilised than at present. The work of clearing mechanically a portion of land of about 10 acres was completed at the end of the year. Plans were made for quarters for the overseer in charge and for offices and store rooms. These will be constructed in 1953.

(d) Pamplemousses Experiment Station. The work done at this station has been on the same lines as last year. The main planting effort has centred around the building up of planting material for larger scale trials next year. Four acres of the new area of 15 acres leased fom Mon Rocher Estate were mechanically prepared for planting tobacco in 1953. There has been considerable difficulty to recruit labour, not only during the cane cropping season but at other times, as work on sugar lands appears to be more attractive to the labour available in the locality.

(e) Barkly Experiment Station. Barkly is the principal horticultural station of the Division. Land for extending the station was secured in 1951. Clearing continued in 1952 over a small area which is among the rockiest in Mauritius. Next year, heavy machines will be put on the job. This area will be utilised to increase the production of vegetable seeds which are very

popular among market gardeners. Here again the initial effort has gone to making provision for an adequate water supply. A new reservoir of 33,000 cubic feet capacity, begun in 1951, was completed ; one of the old reservoirs has been rebuilt and provided with a concrete bottom. In the old part of the station some bench-terracing, which has made possible the utilisation of a small derelict field, was carried out. Plans were made for the construction of a new building to house offices, sale room, seed store, a small laboratory and a large seed manipulating room, all of which are essential if this promising line of work is to be properly developed.

Gardens and Nurseries

The two gardens under the Division's control: Pamplemousses and Telfair, were kept in good condition. A new pond which has been designed to be ornamental and to provide irrigation water to an orchard, was completed at the Royal Botanical Gardens.

The nurseries at Pamplemousses, Abercrombie and Barkly supplied a large quantity of planting material for sale to the public and issue to Government institutions.

Plant and Seed Production

For the first time since 1939 prices of plants and seeds were raised, with effect from 1st July. The number of plants sold to the public was greater than usual, the principal fruit trees sold being:—

Avocado (grafts)	206
Avocado (seedlings)	847
Breadfruit (root suckers)	584
Coconut (Pemba)	211
Litchi (layers)	1,425
Mango (grafts)	774
Peach (grafts)	415
Citrus (seedlings)	3,329

Vegetable seeds produced totalled 1,708 kilos, as compared with 953 kilos in 1951, 1,079 kilos in 1950 and 769 kilos in 1949.

The value of plants and seeds sold to the public or supplied free to Government institutions, was Rs. 13,757* and Rs. 5,279† respectively, as compared with Rs. 12,286‡ and Rs. 4,753§ in 1951 and Rs. 8,810¶ and Rs. 4,996|| in 1950. The increase in revenue from sale of seeds is due to greater demand, not to increased prices, as these will only begin to weigh into the scale early next season.

Fibre experiments

(a) Furcraea. The Chaumière experiment with Furcraea and Sisal was completed in May and the results worked out. The final results will be published elsewhere when the staff position eases and pressure of work permits.

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*£1,031 15 shs 6 d ;
†£ 395 18 shs 6 d ;
‡£ 921 9 shs 0 d ;
§£ 356 9 shs 6 d ;
¶£660 15 shs 0 d ;
||£ 374 14 shs 0 d.

Trials planted at Richelieu in March 1950, are growing fairly well. Leaf length now averages 2·5 feet. In August, some leaves were cut for decortication, but they were too short for satisfactory results with the new decorticators now being experimented with by the Engineering Division. Trials planted in 1951 are making relatively better progress, being sited for the most part on somewhat better soil.

It is not expected that very much information will ultimately be gained from the fertiliser trials, but one important fact has already emerged, namely that deficiency of potash induces the appearance of a leaf "disease." This has been the subject of special study by the Botanical Division. Plots receiving nitrogen have grown better than those not receiving any. Interplanted food crops have not been successful and it is clear already that the combination of Furcraea and foodcrops can hardly be encouraged. This could be done only where water is not the limiting factor

In 1952, a few more trials, mostly spacement trials, with and without shade plants in the interrows, were laid down over an area of about 3 acres.

(b) Kenaf. A few small plots comprising several planting distances and sown at monthly intervals from July, were put down to Kenaf *(Hibiscus cannabinus)*. At that time of the year, it is very dry at Richelieu and it was at once evident that irrigation at regular intervals had to be applied. Spacings wider than 12 inches between rows do not seem advantageous. Similar plantings were made with roselle *(Hibiscus Sabdariffa,* var *altissima)*.

(c) New Zealand Hemp. Seeds were very slow to germinate. At Curepipe, 8 months after sowing the seedlings were 4½ inches high. They fared a little better at Barkly. A small trial plot will be planted at Curepipe Experimental Station next year.

At the end of the year, the total area under fibre yielding plants was 17 acres.

Tobacco

(a) The programme of work for 1952 consisted mainly of the following:—

(i) Production of suitably selected and graded seed for all commercial plantations in the Island ;

(ii) Trials with various types and varieties of tobacco, including a number of new or recent introductions ;

(iii) Breeding and selection for resistance to Black Shank ;

(iv) Crop rotation studies ;

(v) A number of other investigations of lesser importance, including a study of growers' field methods, particularly in connection with seedbed technique.

(b) All tobacco planted in December 1951 and January 1952, at the Research Station, Richelieu, failed through lack of rainfall, the cessation of irrigation water owing to urgent repairs to the main supply canal, and through the incidence of disease. The total area involved was 9½ acres comprising both fertiliser and variety trials and seed production plots. The plantation was resumed on a smaller scale later in the year. Although the temperature was then cooler, irrigation was available and incidence of black shank was very low.

(c) Seed Production. A good supply of seed for the 1953 planting season was raised in spite of the early setback at the Research Station. These seeds were produced at Richelieu, at a sub-station opened at Rivière du Rempart and on the land of three of the best tobacco growers at Flacq and Pamplemousses. Altogether 51·6 kilos of seeds were collected and graded.

(d) Variety Trials. The progeny of earlier individual selections of Amarello, the variety most favoured by local tobacco growers, showed significant difference in yield and value of leaf. Line selection was done and one particular line has shown considerable promise.

Among the flue-cured Virginian varieties under trial, *Yellow Special,* received from India in 1950, and a strain of *Jamaica Wrapper,* from Canada, compared favourably with the established varieties *Bonanza* and *Jamaica Wrapper.* Plots grown with seeds of *Western,* a fire-cured variety received from Nyasaland and Tanganyika, were very uneven, but *Western* appears to be more resistant to Black Shank than the flue-cured and Virginian varieties.

Two varieties of cigar-wrapper from Florida, and the varieties *Natu* and *Usikappal* from India, were received for trial next year.

(e) Other Investigations :—

(i) In the Black Shank resistance trials all the Rg hybrids (Rg × flue-cured Virginian, Rg × Amarello, Rg × air-cured varieties) showed considerable resistance to the disease. These hybrids were again back-crossed to three parent varieties. The progeny of these crosses will be planted next season.

(ii) In an experiment with DD soil fumigant, it was found that an application at 4 ml. of DD per square foot of soil surface gave good protection against eel-worms in seed-beds. A similar experiment in plantations did not give reliable data owing to severe loss through black shank.

(iii) In connection with crop rotation it is becoming increasingly clear that sugarcane is proving more and more useful at Richelieu. Up to the present, sugarcane has not been used on nursery sites where pigeon pea *(Cajanus indicus), Tephrosia* species, pois d'Achery *(Phaseolus lunatus),* pois Mascate *(Stizolobium aterrinum),* Sunn Hemp *(Crotolaria juncea)* and pois sabre *(Canavalia ensiformis)* are under observation.

(f) Rivière du Rempart sub-station. One acre of land was leased in the centre of the largest tobacco producing area for a small experimental station. Seed- beds were raised to provide seedlings and to serve as demonstrations to tobacco growers of the locality. Half an acre was planted with Amarello pointed-leaf and flue-cured Virginian varieties, and a few plots received fertiliser mixtures of different kinds. Some seed-beds were protected with cheese-cloth, as is usual, others were provided with a cover of vetivert *(Vetiveria zizanoides)* one inch thick for five days only, i.e., during the period of germination only.

Better results were obtained with *vetivert* than with cheese-cloth. Some beds were given top dressings of pen manure, others of goat manure ; the goat manure gave better results. Beds to which manure was not applied at all

were not satisfactory. It thus appeared that the practice followed by growers is sound. These experimets will be repeated next year. In view of the failure of some growers at the seed-bed stage, four demonstration nurseries were made and the best technique explained to a number of planters.

(g) Future Plans :—

(i) While the writer was on overseas leave, the Tobacco Research Station was attached to the Agricultural Division. On resuming his duties, the whole structure of experimental work was examined and a complete programme for the next few years was outlined. In future, a part of the field work will be carried out at Pamplemousses Experimental Station which is more representative than Richelieu for tobacco. The sub-station at Rivière du Rempart was closed at the end of the year.

(ii) At Richelieu one of the main field desiderata is the proper clearing of rocks from the sub-surface. This was done over some 18 acres. The rest of the land will be dealt with in the next few years. A comprehensive scheme of cultural experiments has been devised which includes more rational methods of utilising irrigation water and involves better control of the soil-water-air relationship in the hope that some improvement in the quality of the tobacco will be obtained.

(iii) With the same end in view work was begun on a new bulking and grading room half sunk into the ground, provided with an earthen floor and a thatch roof, and designed to improve the conditioning of the leaves after removal from the barns, the existing grading shed being quite unsuitable for the purpose.

(iv) Provision was made for the improvement of facilities for preparing pen manure of which larger quantities could be used, due regard being paid to the risk of Black Shank.

(v) One of the reasons for high Black Shank incidence is the inability to control adequately the application of surface irrigation without which tobacco cannot be grown at Richelieu. A 28 h.p Sigmund pump for overhead irrigation was received during the year. In order to utilise this pump to a maximum adequate piping is required. Enough piping for ten acres has been ordered and steps have been taken for the purchase, next year, of sufficient pipes for another ten acres. When these pipes are available most of the tobacco grown at the Station will be spray-irrigated. The equipment will also permit the production of a useful winter crop of potatoes following tobacco.

Fodder and Silage

Seeds of numerous plants were introduced to be put in propagation and observation plots prior to being released for trial on a larger scale. Among these, many are useful fodders, mostly graminaceous. As regards legumes, *Leucaena glauca* which is well established at lower elevations in Mauritius is the obvious answer, in combination with cane tops or grass, for feeding to livestock in the first part of the year. Later, fodder of most kinds becomes

scarce, and one of the ways of tiding over the difficult period prior to the start of the cane cropping season, is to have recourse to ensilage of surplus cane tops of the previous season. Under the Development and Welfare Plan some money has been made available for silage experiments. A small silo (capacity 22 tons cane tops) made of compressed cement bricks, was erected at Richelieu at a cost of Rs. 4,000 (£300) and filled with cane tops. Ensiling of maize will also be done in another silo of a slightly different design to be erected early next year. To this end experimental fodder plots have been sown. *Leucaena glauca* is also under experiment at Pamplemousses Experiment Station.

Rodrigues

(a) The summer maize crop was about half normal size owing to deficiency of rainfall in December 1951 and January 1952. The winter crop, however, was very satisfactory. Eight hundred and seventy-five pounds of seed were supplied by the Experimental Station to growers of maize throughout the island. Generally speaking, the bean crop which is largely exported to Mauritius was satisfactory. Garlic and onions, also export crops, yielded well.

(b) Experimental Station :—

(i) Small scale trials with different varieties of various crops of importance to Rodrigues were carried out on the same lines as last year. *New Zealand* maize gave a yield of 1,176 kilos per acre. Among the beans, *Golden Queen* and *Mange Tout* gave the best yields. Sweet potato *No. 27* was outstanding with a production of just over 12 tons per acre. The winter-planted tomatoes *Reine des hâtives* and *Cerise* gave yields of 8 tons of fruit per acre.

(ii) Phosphatic guano obtained from some of the outlying islets was applied in some field trials at the station. Increased yields were obtained and it is expected that this will induce Rodriguans to make use of the available guano.

(iii) *Livestock.* The Dorsian ram introduced from Mauritius in November, 1951, died in July from pneumonia. His progeny consists of one ewe and two rams born in August.

Among the poultry Rhode Island Red, White Leghorn and Turkey progressed satisfactorily. These, especially Rhode Island Red, are becoming increasingly popular with the Rodriguan peasant.

A room for use as an incubator house was constructed. It has been equipped with an 'Ironclad' incubator, a gift from the Education Department.

(c) Soil and Water Conservation :—

(i) The construction of bench terraces during the year was done over an area of 190 acres at a cost of Rs. 60,000,* the average cost per acre being Rs. 314 (£23-11/) or 33·5 cents (6d) per running foot of terrace. The area dealt with over the whole island is now nearly 600 acres.

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* £ 4,500.

(ii) As regards water conservation by means of check dams, 122 dams were constructed in four rivers at a cost of 75 cents of a rupee (1/1d) per running foot of dam. Heavy rains in December washed away 7 dams and damaged 20 others.

(d) General. As usual, the Agricultural Officer stationed in the Dependency was very busy throughout the year on the allocation of land leases. The Agricultural Instructor looked after school gardens at Lataniers and La Ferme.

Miscellaneous

A host of miscellaneous matters were dealt with by the various sections of the Division. The Allotment Relief Scheme continued to be administered pending its transfer to the Public Assistance Department. A considerable amount of machinery and other equipment was ordered. Seeds of many plant species were introduced. Lectures on agricultural subjects and practical demonstrations were given by various members of the staff to the students of the College of Agriculture. Planters were visited on request for advice on special problems. Work was done on several committees.

The above was performed with the smallest staff the Division has ever had: the writer was on leave for the first four months of the year ; in August, two Agricultural Officers went to England for long-term studies ; vacancies could not be filled either through lack of suitably qualified candidates or because the Salaries Commissioner had not completed his investigations. Only the Tobacco Section worked at full strength. It is a pleasure, therefore, in concluding this report, to acknowledge the assistance received from all the members of the staff.

A. North Coombes,
Deputy Director of Agriculture.

Veterinary Division

Disease Control

Tuberculosis. The results of the anti-tuberculosis campaign on bovines are encouraging, and the scheme of regular tuberculin testing implemented so far is continuing.

Contagious Abortion. The incidence of abortion at the Government Dairy was nil this year. However, agglutination test of the blood of all females, calves and cows is made monthly. The reactors are immediately segregated. S.19 vaccine, which is received by plane from Kabete Laboratory, is methodically applied on heifer calves 4 months old and repeated at the time they reach service age.

Deficiency Diseases. About 1,000 bovines affected with mineral deficiencies were treated. Most of the cases attended to were due to rickets or hypocalcoemia.

Internal Parasites. Many sheep and goats were treated against the stomach wire worm with the usual good results.

External Parasites. The nostril fly of the sheep and goats, *Oestrus ovis,* was very abundant this year, and caused abnormal casualties in flocks. The method of control had to be improved with a view to restoring conditions to normal. The instillation of nasal oil in combination with D.D.T. and carbon tetrachloride has proved very effective to control infestation.

Poultry Diseases. The demand for fowl pox vaccine has considerably increased during the year under review, proving the efficacy of the vaccine. The latest reports on Fowl Cholera vaccine being so encouraging as a method of control of the disease in conferring to the vaccinated birds an immunity of fairly long duration, experiments are being carried out using the vaccine prepared by the Laboratory Evans of Liverpool.

Sterility Control

The number of cases of sterile heifers and cows treated for cystic ovaries has amounted to 600, out of which some 500 have conceived subsequently.

Artificial Insemination

About 2,000 inseminations of dairy cows have been made during the year, and the rate of conception is highly satisfactory.

General Veterinary Assistance

The number of cases of difficult calving, retention of placenta, mastitis and veterinary assistance in general attended during the year amounted to about 8,000.

Slaughter Houses and Meat Inspection

All the slaughter houses of the Colony were frequently inspected, and the slaughtering of females of the milk breed was controlled as usual with a view to preventing a depletion of the stock.

Veterinary Education

Second-year students, and students in Tropical Agriculture, of the College of Agriculture, were lectured in Veterinary Science and Animal Husbandry.

Sanitary cadets were given a course of training on meat inspection.

Quarantine

Sixteen dogs were imported during the year, and quarantined for 6 months at the Réduit Quarantine Kennels.

A. DARNÉ,
Senior Veterinary Officer.

Animal Husbandry Service

Staff

Three more Livestock Officers were appointed, bringing the total to six, and six more Livestock Assistants (formerly Propaganda Agents) making twelve altogether.

The Animal Husbandry Officer was absent on leave for seven months.

Extension Work.

The Expansion of this work continues apace. The districts of Grand Port, Savanne, Plaines Wilhems, Black River and Port Louis are now fully covered by the field staff, leaving only Pamplemousses, Moka, Flacq and Rivière du Rempart. By February of next year only the last-named will remain unworked, but it is hoped to bring it into the fold before the end of the year, thus covering the whole of the Island within two years from the inception of the scheme.

The appended table summarises the cases dealt with during the year: —

Artificial Insemination	1,743
Enucleation of ovarian cysts	534
Calcium and phosphorus deficiency ...	816
Miscellaneous treatments	3,610
TOTAL	6,703

To date, the artificial insemination among peasant-owned cows is resulting in a 76 per cent conception rate and most of the 243 calves already so produced are being bucket fed and receive a modicum of concentrates, with pleasing results. Owing to the scarcity and high cost of cattle feed little more could be done towards the improvement of rations beyond persuading numerous owners to feed bone phosphates.

A poultry improvement scheme has been set afoot whereby inferior cocks may be exchanged for purebred White Leghorns. The first issue will take place in February, 1953.

Heat Tolerance Tests

As the Animal Husbandry Officer was on leave for the greater part of the year a detailed analysis of the results of the heat tolerance tests carried out at Palmar Stock Breeding Centre has not yet been possible and a brief outline of the indications only is given.

Tests carried out in the open with dry and empty females of the various genotypes during the hot months gave the following results: —

Genotype	*Heat Tolerance Coefficient (after Wright)*
Local Zebu (Herd Cattle)	94
Ongoles	90
Mauritius Creole Milk Breed	89
Afrikander	87
½–bred Friesland X Creole	85
¾–Friesland X Creole	82
Purebred Frieslands	76

A further series of tests was carried out with cows in milk in a cool airy shed in which the dry bulb temperatures and relative humidity approximated to within 1°F and 1 per cent to the Stevenson screen, with the following results:—

Genotype	*Heat Tolerance Coefficient*
½–bred Friesland Creole (1 animal)	97
Creole Milk Breed (3 animals)	93
¾–Friesland ¼ Creole (2 animals)	90
Purebred Friesland (2 animals)	88

It should be noted that the half-bred at the head of the table showed exceptional heat tolerance.

These practical field tests have clearly shown that animals of the Creole Milk Breed are sufficiently heat tolerant to stand up to, and produce milk economically under, the climatic conditions obtaining at Palmar during the hot months.

The Creole Milk Breed.

In view of the results of the Heat tolerance tests at Palmar and the milk potential of the "Creole," it has been decided to build up a herd at that station to be improved by selection within the breed with the object of producing a medium milker suited to peasant-owned conditions in Mauritius and perhaps for export to other tropical colonies in need of a dairy ecotype.

The feeding and environmental tests with Creole cows at Réduit Stock Farm are continuing and should be completed in some six or seven months. The two animals which have completed their second lactations have demonstrated by a 143 per cent increase in total milk production the great part feed plays and how the Creole will respond to good treatment.

One cow which twice slipped her calf had to be withdrawn from the test, leaving five.

Contagious Abortion

For the first time since 1923—the year after the herd was started—there was no abortion at the Government Dairy. There can be little doubt that this is to a large extent due to the methodical use of S. 19 vaccine, particularly that from Kabete, Kenya. Another probably important factor is that since 1944 there have been no outside animals introduced into the herd, although up till the middle of 1949 some heifer calves were stationed for short periods at agricultural experimental centres and returned to the Dairy.

Abortions in 1950 amounted to 23·5 per cent of conceptions ; this fell to 4·3 per cent in 1951 and to zero in 1952. It is to be hoped the incidence remains in that region until the disease is finally stamped out.

Out of a total of 99 females recently tested only 18 per cent showed actively infective as against 29 per cent last year. This reduction is mainly due to the slaughter of some high reactors, but a very pleasing aspect is that whereas in 1951 there were 13 new infections in 1952 there were but two.

Although setbacks are to be expected it is not too much to expect the herd to be clean in the course of a few years.

For the second consecutive year, there were no abortions at Palmar Breeding Centre, nor were any reported by the field staff working among the Indian-owned milk cows.

Bulls at Outstations

The nine bulls at outstations for use by the small breeder served 839 females, a decrease of 109 on last year which is easily accounted for by the increased use being made of the artificial insemination service.

Most of the purebred Friesland and half-bred Friesland/Creole bulls are being replaced by selected three-quarter-breds.

Sale of Young Bulls

Four more have been booked by small breeders bringing the total, with the five already sold, up to nine. Artificial insemination is of course adversely affecting the sales and the scheme for the loaning of bulls has fallen away.

Pilot Haymaking Scheme

The preparation of land at Plaisance Air Port is going ahead and planting and seedling will start in February. It is much regretted that due to the absence of the Animal Husbandry Officer on leave there is not more progress to report. The new " Ferguson " tractor and implements are proving very satisfactory.

An experimental grass drier has been ordered and will be tried out in the higher rainfall areas.

Palmar Stock Breeding Centre

Sheep. Sheep nasal bots, " Oestrus ovis," played havoc among the flocks particularly the cross-bred Dorsian/Black Head Persian. The purebred Dorsians came off comparatively lightly. The resumption of weekly dipping and the use of improved nasal drops together with the improved condition of the animals after the copious rain appear to have brought the pest for the time being at least under control.

A further two rams and nineteen Dorsian ewes from South Africa have been added to the stud.

Goats. All the adult Anglo-Nubian females are in milk and averaging 1·4 kilos per day at all stages of lactation. This would have been higher but three of the animals are in their first lactation and the other four were served too soon after kidding. A limited number of purebred bucks are now available to breeders.

The local (Bar Bari) does are doing well and all have been mated to Anglo-Nubian bucks. To date 27 cross-bred kids have been dropped.

Cattle. All the cattle are in good health. Three young Ongole bulls are being offered for sale.

The local zebus and Afrikanders are as usual in prime condition. The latter herd has been reduced by the sale of three young bulls and eight females, leaving one bull, six females and four calves.

The Dairy heifers, of which there are now 32, are growing out well and breeding easily. One died of pneumonia, the only death since heifers were first stationed there in early 1951. Eleven were returned to the Dairy for calving.

Government Dairy

Milk Production. As the appended comparative table shows total and individual production are somewhat down. This is in the main attributable to the fact that no less than 24 of the lactating animals were first calvers and also that the five highest producing cows used in the heat tolerance tests at Palmar had their services postponed for six months, which alone meant a loss of 12,000 kilos.

	1949	*1950*	*1951*	*1952*
Average No. of cows in milk	34	29	35	41
Total milk produced (kilos)	95273·	100631·	125533·	122271·
Average output per lactating cow (kilos) ...	2800·	3470·	3597·	2982·
Average daily yield per lactating cow (kilos) ...	7·7	9·27	9·86	8·15
Average output per adult female (kilos)	1132·	1873·	2535	2466·
Average daily production per adult female (kilos)	3·39	5·	6·95	6·74
Calving rate (%)	44	54	70· 5	82· 7

Fertility. The calving rate, i.e., the percentage of the adult females which calved, had risen very pleasingly to 82·7 per cent.

Contagious Abortion. As already stated, abortions fell from 4·3 per cent to nil.

J. G. Bennie,
Animal Husbandry Officer.

Tea Division

General

Crop is again a record and this is the seventh consecutive year in which increase in production has been recorded. Tea planted at the Government Experimental Station, Crown Land Wooton, from January to April, 1950, was plucked for the first time in September, 1952—2½ years to come into bearing.

Staff. Mr. S. Mariette was appointed Superintendent of Tea Plantations on the 1st September. He was for two months at the Experimental Station, Crown Land Wooton, for instruction and, on the 1st November, went to Midlands where he will eventually take charge of routine work and extensions connected with Government tea in that area.

The post of Assistant Tea Officer has remained vacant during the period under review.

Weather. Less rain fell than during the previous year but the total was above average. December was a wet month and during the 24 hours of the 17th, 7·31 inches of rain were recorded at Crown Land Wooton and 9·85 inches at Midlands.

	Rainfall			
Year	*Crown Land Wooton*		*Midlands*	
	Inches	*Wet Days*	*Inches*	*Wet Days*
1951 ...	174·56	268	—	—
1952 ...	159.21	286	102.18 (June to December)	175

Production

The total production of tea for the year 1952 was (Black) 883,350 English Pounds and (Green) 2,542 English pounds, which is an increase over the previous year of 42,190 lb. for black tea but green tea shows a decrease of 1,786 lb.

Climatic conditions were very favourable during first and last quarters and this, with the slighty greater area in bearing, are the main reasons for the increase in black tea. The decrease in green tea is due to lack of demand for that type of tea, and possibly the owner finds it more remunerative to sell his green leaf to a black tea manufacturer.

PRODUCTION FOR THE FIVE TEA FACTORIES DURING THE LAST THREE YEARS IN ENGLISH POUNDS

	1950	*1951*	*1952*
Bois Cheri	335,447	379,035	400,484
Curepipe Factory ...	231,764	252,477	257,663
Avenir St. André ...	74,640	110,690	131,828
Pont Colleville ...	64,618	66,868	74,673
Nouvelle France* ...	42,724	32,090	18,702
	749,193	841,160	883,350
Green Tea	3,972	4,238	2,542

IMPORTS AND EXPORTS (IN ENGLISH POUNDS)

Year	*Imports*	*Exports*
1950	86,849	47,986
1951	47,641	89,826†
1952	94,822	16,035

Imports for the year originated from the following countries:—

	lb
Ceylon	88,837
Hong Kong ...	4,514
India	1,399
Malaya	72
	94,822

*This factory was closed during the last five months of the year.
†This figure 129,269 given in the 1951 report was incorrect.

There was practically no export of tea from Mauritius for the first 9 months of the year.

Year	Area under cultivation of tea			
	Permits issued		Area planted	
	Arpents Perches		Arpents Perches	
Up to and including 1951 ...	3,073·79	(3196·74 acres)	2,119·90	(2,204·69 acres)
Up to and including 1952 ...	244·11	(253·87 ,,)	150·00	(156·00 ,)
Government Experiment Station (Crown Land Wooton) 1950–52	—	—	36·00	(37·44 ,,)
Government Plantations at Midlands	—	—	20·00	(20·80 ,,)
TOTAL	3,317·90	(3,450·61 acres)	2,325·90	(2,418·93 ,,)

In addition to the above, there are 9 arpents (9·36 acres) Government owned seed-bearers at Parc-aux-Cerfs.

It is impossible to give an accurate figure of the number of arpents in bearing. Many of the permits issued have not been utilised but owing to short staff, the exact area has not been checked. It is hoped to do this during 1953. The approximate area in bearing is 2,200 arpents (2,288 acres), from which the yield is just over 400 English pounds per arpent (1·04 acres).

Tea Committee

The Tea Committee held 13 meetings during the year.

Items discussed. Import duty on tea, Tea policy, Lease of Crown Lands to planters, Amendments to Ordinance No. 51 of 1949, Packeting and Sale of tea, Cess on locally manufactured tea.

Tea Factories

Bois Chéri. The extension and reconstruction of this factory is now complete and the factory compares favourably as regards size and equipment with modern factories in other tea growing countries.

Avenir St. André. This factory was opened by His Excellency the Governor on the 3rd April, and commenced operating on the 1st July. It is a medium sized concrete factory built on modern lines with up-to-date machinery.

Pont Colville. The concrete structure is nearing completion but no machinery has been installed.

Nouvelle France. Construction in concrete nearing completion, and part of the equipment installed.

Usine Corson. This factory will be unique for tea factories in Mauritius in that it has a steel frame with iron cladding and roof, all of which has been imported from the United Kingdom. The building is not yet completed.

Labour

Labour has been in short supply on most plantations, particularly during the months when intake of crop is at its greatest. As this is also the time when weeds are most prolific, a number of estates are experimenting with

weed killers by spraying. Labour for the Experimental Station, Crown Land Wooton, is always available and can be increased as required but at Midlands it fluctuates according to the sugar crop season and is short during that time.

Tea Seed

One thousand (1,000) pounds of high jat seed was obtained from Lujeri Estate, Nyasaland. This was sent by air in five consignments during March/April. Germination was good—84 per cent. The seed was planted at the Experimental Station and at Midlands.

A small quantity of seed, 214 lb., was obtained from the seed-bearers at Parc-aux-Cerfs. These bearers, from imported seed from Malaya, are now four years old. They have grown well, and each year should show an increase in weight of seed produced, except when there is a severe cyclone.

A small amount of seed was picked from the 5 arpents* seed bearers at Crown Land Montille. Part of this was planted at the Experimental Station to square off a field, No. 5, which was already planted with seed from those bearers and the remainder of the seed was sold. Now that we are able to obtain good jat seed from overseas and have our own bearers at Parc-au-Cerfs, the seed from Crown Land Montille, which is very mixed, will not be required.

Experimental Station, Crown Land Wooton

A further 8 acres was cleared and planted during 1952. This was a smaller area than was intended owing to the large programme of supplying being undertaken in the two-year old tea. The area under tea at the Experimental Station at the end of 1952 was as follows. The acreage is approximate as the areas planted do not, in most cases, fall within the boundaries of the Forest Department plan, which is in arpents (1 arpent = 1·04 acres). A surveyor will be employed during 1953 to make an accurate plan in acres.

No. 1 Field	3 Arpents 93 perches	(4·0872 acres)
No. 2 Field	4 Arpents 82 perches	(5·0128 ,,)
No. 3 Field	6 Arpents approx.	(6·24 ,,)
No. 4 Field	5 Arpents approx.	(5·20 ,,)
No. 5 Field	16 Arpents approx.	(16·64 ,,)
TOTAL ...	35 Arpents 75 perches	(37·18 ,,)

A further 12 arpents (12·48 acres) have been cleared for 1953 planting. Nos. 1, 2 and 3 Fields, planted from February to April, 1950, were cut across in April and taken into plucking on the 8th September, 1952. These three fields are in excellent state of cultivation and yields from September to the end of the year—3½ months—are as follows:—

No. 1 Field	98 lb per arpent (1·04 acre)
No. 2 Field	225 ,, ,,
No. 3 Field	125 ,, ,,

The Green Leaf is, at present, sold under contract to Usine Corson.

The tea in Nos. 1 and 2 Fields is grown from imported seed from Malaya and No. 3 Field from local seed. The reason for the low yield of No. 1 compared to No. 2 Field is that in this area, the original nurseries were laid out, ¾ arpent, and there were broad rows across the field in which rocks, tree

*5·20 acres

stumps and soil were pushed by the bulldozer when the fields were originally opened. These rows have now been cleared and with the old nursery have been planted in tea. In a few years' time, the yield should be equal to that of No. 1 Field.

The wind breaks of *Grevillea robusta* (silky oak) in these fields are excellent.

Nos. 4 and 5 Fields part 8 acres. The branches of the bushes were pegged down in January and March respectively. The tea in these fields will be cut across in April 1953, and brought into bearing in September the same year.

The 5 fields mentioned received an application of 500 lb. fertilisers to the acre in October/November and where *Tephrosia candida* was growing, this was pulled up and the loppings forked in with the fertilisers.

The whole of the area has been planted with *Albizzia molucana* seedlings between the wind breaks.

Field No. 6 (10 acres approx.). The field has been cleared and a mechanical unit was used to uproot the large tree stumps, mostly camphor and jambrosia. This area will be planted with seed obtained from Nyasaland, in April/May, 1953.

Two acres adjoining No. 1 Field have also been cleared and will be planted with plants and stumps from Parc-aux-Cerfs seed.

Nursery

Two hundred and fourteen (214) pounds seed from Parc-aux-Cerfs and 200 lb. seed from Nyasaland was planted in beds, the resulting plants being used for planting new areas and supplying the old tea.

Sales of Plants and Seeds

One hundred and sixty seven (167) kilos of Crown Land Montille seed to small holders.

Thirty four thousand eight hundred (34,800) plants from Crown Land Montille seed to small holders.

Vegetative Propagation

Fifty (50) plants from each of 19 clones have been planted in rows in a separate plot. It is intended to take cuttings from the best six of these clones for further propagation.

Midlands

Clearing was started on the 7th January. The intention is to clear and plant 100 acres a year up to a total of 500 acres.

Owing to the start being delayed, it was possible to clear and prepare only 20 acres for 1952.

The seed used was imported from Nyasaland. Three acres of the area was planted at wider intervals, the trees to be left as seed-bearers.

At the time of planting, seed at stake from June to August, it was very wet and a certain amount of the seed in the holes became mildewy and rotted. All vacancies have been supplied with plants from the Nursery, of the same seed, by the Hersall Transplanter. Good growth was made during the last quarter of the year and there is no doubt tea will do well in that area.

Tephrosia candida has been planted in alternate rows and, for the most part, is growing well.

Windbreaks of Grevillea robusta as at Crown Land Wooton have been planted in two lines every 30 feet, with *Albizzia molucana* seedlings in one line midway between the double lines of Grevilleas.

Clearing and burning for 1953 planting was started in July and by the end of the year 43½ acres had been completed. A mechanical rooter and rake was then used over most of the area.

Drains are now being cut. It is to be noted that with the land being almost flat and the subsoil of a clayey nature, good deep drains must be cut to prevent the soil becoming water logged during winter.

Two blocks of 2 quarters each for resident labourers were built. The construction was wooden frame, sides of ravenal rendered with cement, concrete floor for rooms and verandah and a 5 feet concrete ramp in front of the buildings. Outside kitchens and latrines.

Pests and Diseases

A little *Grey Blight* has been reported but otherwise no disease.

Six healthy tea bushes in No. 2 Field, Experimental Station, have died through being attacked by termites—*Calotermes (Neotermes) hova.*

In each case, the bush was near to a decayed tree stump, infested with termites. These had entered from underground and hollowed out the living wood of the stem of the tea bush.

No case occurred in the other fields.

No. 2 Field, before being cleared to plant tea, had a stand of pine trees and jambrosia stumps.

Land Rover

Besides being used for personal transport, the machine carried: sixty eight thousand one hundred and sixty (68,160) kilos fertilizers from Réduit to Crown Land Wooton ; 1,692 kilos fertilizers from Crown Land Wooton to Parc-aux-Cerfs.

In addition to the above, timber from the Forest Department to Crown Land Wooton and purchases of tools, paint, corrugated iron, etc., from Port Louis to the different Government tea undertakings.

Seed was also transported and sold from the Rover to small holders.

F. O. Sprinks,
Tea Officer.

Entomological Division

Staff

The Entomologist left for overseas leave on 8th January, 1952, and returned on 10th September, 1952. During this period, the Associate Entomologist acted in his stead.

One post of Scientific Assistant remained vacant throughout the year.

Pests of Sugarcane

The spotted borer, Proceras sacchariphagus Boj. Collections of larvae made during the year failed to reveal parasitism by *Agathis stigmaterus* Cres. (Braconidae) which was introduced last year. Three additional consignments of this parasite were received between April and July from the Sub-station of the Commonwealth Institute of Biological Control in Trinidad.

An attempt was made to introduce the egg parasite *Prophanurus alecto* Craw. (Scelionidae) also from Trinidad. Unfortunately, a successful method of transporting the insect was not evolved. Fifteen consignments were sent by air from the above-mentioned Institute, but no live adult parasites were obtained from the 9,600 (approximately) parasitised eggs of *Diatraea saccharalis* which comprised these consignments.

The pink borer, Sesamia calamistis Hamps. The Department of Agriculture, Nairobi, Kenya, very kindly agreed to collect for dispatch to Mauritius the parasite*Apanteles sesamiae* Cam., which is a well known and widespread enemy of the Maize Stalk Borer *(Busseola fusca)* in Africa. In January–March 270 live adults of *A. sesamiae* were obtained from the consignments sent from Kenya, and breeding in the laboratory was commenced. At the end of the year, a total of 17,250 laboratory-reared adults had been liberated in various parts of the island, and in several of these places parasitism of *Sesamia* larvae was subsequently observed. In view of this early recovery of *A. sesamiæ* in the field, and of the facility with which it breeds upon *Sesamia* in the laboratory, it is anticipated that it will soon become well established and a useful parasite of the pink borer.

The white grub, Clemora smithi (Arrow). The attempt which was made in 1950–51 to establish the predacious *Bufo marinus* L., has apparently failed. This was the second attempt to establish it, the previous one being in 1938.

Rats

Attention has recently been drawn to the depredations caused by rats in cane fields. The damage appears to be more acute in the southern region of the island. Comparatively, little attention has been given to the activity of rats in cane fields in Mauritius, and there is a lack of experience regarding methods of control. Interested estates are now beginning poisoning campaigns.

Control of the Black Sage Cordia macrostachya

Work on this subject is now confined to making observations upon remaining *Cordia* growths and upon the activity of the insects *Schematiza cordiæ* and *Eurytoma* sp.

Generally, the amount of *Cordia* vegetation in the island has neither decreased nor increased during the year. Defoliation by *Schematiza* was more noticeable on young plants and seedlings, rather than on mature bushes. *Eurytoma* continues to be very active and is instrumental in the destruction of a large percentage of seeds before they reach maturity. The biology of this latter insect has now been worked out in some detail.

General

(a) Red Spider (*Tetranychus* sp.) continues to be an important pest of tomato plantations, there having been many severe attacks during the year. Other solanaceous crop plants such as potato and egg plant *(S. melongena)* are also very liable to severe attacks of mites. Very little work has previously been done upon the subject of mites of agricultural importance in the island, and a general investigation which has started has already produced much new information.

In a previous report (that for 1950) it was mentioned that owing to the very beneficial activity of the local red spider predator *Stethorus vinsoni,* the introduction of other members of this genus seemed a desirable experiment. *S. jejunus* Casey was introduced in that same year from South Africa. During 1952, another species, *S. picipes* Casey, was introduced with the aid of the Commonwealth Institute of Biological Control. A total of 20,800 individuals of this species was sent by air from the California substation of the Institute by Dr. D. C. Lloyd. Of these, 16,300 were received alive and released in areas where red spiders were abundant. A survey is to be made in the coming year to determine if these two predators have become established.

(b) A survey to determine the species of aphids which feed on potato plants, and their incidence, was started during the year. This work was initiated to obtain information about possible vectors of Leaf Roll.

(c) Through the courtesy of the Deputy Director of the *Institut de Recherches Scientifiques de Madagascar,* two small consignments of *Cryptochaetum monophlebi* Skuse, a Dipterous parasite of *Icerya seychellarum* West., were received. From 87 pupæ sent, 24 live adults were released upon Icerya infested plants.

Shipment abroad of beneficial insects

At the request of the Director of the Commonwealth Institute of Biological Control, Trinidad, shipments of the local cane moth borer parasites *Apanteles flavipes* Cam., *Xanthopimpla citrina* Holmgr., and *X. stemmator* Thunb. were sent. Over 900 *apanteles* cocoons and 54 *Xanthopimpla* adults were despatched ; the latter did not survive the voyage.

Miscellaneous

Lectures in Entomology at the College of Agriculture were delivered by Associate Entomologist until September, when the Entomologist returned from leave and resumed duties.

J. R. WILLIAMS,
Entomologist.

Botanical Division

Staff

The Division again worked with reduced staff during the year, as the Acting Scientific Assistant had to be stationed at the Plant Inspection Office at the Customs, the Plant Inspector being still on study leave in England.

The Assistant Plant Pathologist was on official visit to Réunion Island from 20th to 30th July. Upon his return, he was engaged in preparing and collecting material for the Mauritius Exhibit at the show which was to be held in Tananarive in September and October following. The Assistant Plant Pathologist proceeded to Madagascar on the 14th of September, where he remained until the 29th of October. Soon after his return, he was detached for investigations into the irrigation problem of sugar cane land in the Island.

The Head of the Division was thus left single-handed for a large part of the year, with consequent handicap to research and other work.

Diseases of the Sugarcane

The only disease of importance which drew attention during the year was Chlorotic Streak, which now constitutes the major sugarcane disease in the island, and to which most of the varieties under cultivation are more or less susceptible, chiefly E.1/37. The disease is rare or absent in many parts of the island, but rather severe in areas where the soil is heavy, and of constant high humidity, chiefly if badly drained. On three estates in Grand Port and Moka, poor stand in virgins, death of stubble in ratoons and low field yield were attributed to the disease.

No outbreak of red rot was observed ; only isolated infected shoots were seen occasionally, and these infections followed borer injury.

Tobacco

Damping-off caused damage to planters' seed beds following periods of heavy rain, but was considerably less in demonstration beds which had been treated with Cheshunt compound.

Black Shank was severe in early plantations at the Richelieu Tobacco Station, but the incidence of the disease was much less in later plantations.

Only seven cases of *leaf curl* were encountered during the year, one case having been found at the Central Experiment Station at Réduit, five cases in Rivière du Rempart district and only one case at Triolet. It thus appears that the transmission of the disease from affected wild hosts is not effected readily in the island.

Potato

It was mentioned in earlier reports (1950: page 81 ; 1951: page 67) that plantations from South African table potatoes had shown a high percentage of leaf roll, amounting to 100 per cent in some cases, and that experimental plots raised from certified seed of the same source had also shown a high incidence of the disease.

Early this year, the Chairman of the Potato Board in Pretoria, accompanied by another member of the Board, visited Mauritius, and the position was discussed with them.

Small consignments of ' A ' certified seed of some of the best potato varieties in South Africa were later received from the South African Potato Board for trial in the island, and were planted at the Central Experimental Station and at the Royal Botanical Gardens in Pamplemousses.

The variety ' King George,' received from Ceres, Cape Province, showed complete absence of the disease. The ' Up-to-Date ' seed was received from three different sources, viz., Amsterdam and Leslie, Transvaal, and from Donnybrook, Natal ; whilst seed of the ' Majestic ' and ' Kennebec ' varieties came from Donnybrook, Natal, and Amsterdam, Transvaal, respectively. These three varieties showed varying percentages of infection. The results of the trials were communicated to the South African Potato Board.

Filao (Casuarina equisetifolia Forst).

A filao plantation was visited at Case Noyale in Black River, in which a number of trees were dying, but the affection was not due to the bacterial wilt reported in recent years. A few of the trees were showing smut. The wood of the diseased trees was noticed to have turned slightly brown in the interior and a peculiar smell of fermentation was detected. As *Phytophthora cambivora* (Petri) Buisman had been obtained from a diseased filao tree in 1950 (Annual Report: Page 82), cultures were made of the discoloured root tissues, but no *Phytophthora* developed.

Cultures from the stem tissues yielded two types of fungi and a yellow bacterium, all of which, inoculated into young, healthy filao trees, failed to develop the disease. As some of the fungus cultures obtained proved to be the smut organism, inoculations were also made by various methods, with cultures from the smut spores and directly with the spores themselves, but remained all negative.

A few other diseases of the filao of minor importance were observed during the inspections of the plantations and some inoculation work with direct diseased material effected, which remained without effect.

The fungi *Hypoxylon annulatum* (Schwein ex Fr.) Mont. and *Ustulina zonata* (Lev.) Sacc. were seen growing as saprophytes on trees affected with bacterial wilt in Savanne.

Corticium salmonicolor Berk. and Br. was recorded causing a die-back of branches at the Curepipe Forest Nursery on *Casuarina tenuissima* Sieber.

Ginger

A wilt disease of the plant at Crève-Coeur in the Montagne Longue region was investigated and proved to be caused by *Pseudomonas solanacearum* (Smith): the bacterium isolated resulted in characteristic wilt symptoms on inoculated tomato plants.

During the investigations, another bacterial disease was observed, causing a yellowing and drying of the margins of the leaves of the plant. Gum ooze from the stems and rhizomes of the affected plants was absent in this case. Several yellow bacteria were obtained in culture, but failed to prove pathogenic.

The white leaf spotting reported in previous years, occurred this year chiefly when the plants were nearing maturity. This disease is the worst disease of ginger in the region, the plants drying when the spotting is severe. In cultures, yellow bacteria were obtained, and a species of *Gloeosporium*, which also failed to reproduce the disease.

Other Diseases

Eucalyptus spp. (a) Leaf spot caused by *Calonectria theae* Loos. A severe attack by the fungus was obesrved in the wet months of April and May in the forest plantations of the central plateau and upper slopes of the island, resulting in defoliation and death of the lower twigs of the trees. The disease was absent in lowland plantations.

(b) Die-back of stem and branches caused by *Corticium salmonicolor* Berk and Br., in a few isolated spots on the central plateau, chiefly in dense growths of underwood.

Tristania conferta—leaf spot caused by *Candelospora* sp.

Poinciana regia (Flamboyant), Wilt probably caused by *Pseudomonas solanacearum* (Smith.), on a few plants in an avenue at Grande Rosalie Estate. The wood is turned light brown internally, with a wavy, dark-red zone bordering the diseased area. Gum exudation, dirty-white to brown and red is produced from the cut surfaces of the stem. Bacterial wilt symptoms were produced on tomato plants by cultures isolated from the gum ooze.

Peach. Canker, associated with *Nectria haematococca* Berk and Br. (var. *cancri* (Rutgers) Wollenw. ?).

Onion. Damping-off, caused by *Colletotrichum circinans* Berk. (Voglino).

Earthnut. (a) Bacterial wilt ; *(b)* Root and collar rot caused by *Aspergillus niger* var. Tiegh. ; *(c)* Stem rot caused by *Botryodiplodia theobromæ* Pat.

Pistache Malgache (Voandzia subterranea). Stem rot caused by *Sclerotium rolfsii* Sacc.

Amorphophallus campanulatus (Elephant foot yam). Wilt, bacterial.

Yucca (gloriosa?). Top rot *Phytophthora palmivora* Butl.

Juniperus Bermudiana. Wilt and die-back (undetermined).

Control of Imported Plant Material

Cane Quarantine Greenhouse. The following cane varieties were received in October and are growing under quarantine:—

From Reunion Island: R.366—R.397—Pindar, Trojan, P.O.J.3016 and B.41227.

From U. S. Department of Agriculture: H.32–8560 ; H.37–1933 and Eros.

Plant Inspection at the Customs and Airport. The control of plant imports at the Customs and Airport was effected as usual.

Legislation. Proclamation No. 7 of 1952: to prohibit the importation into Mauritius of maize from certain parts of Africa.

Miscellaneous

The Assistant Plant Pathologist continued to deliver lectures in Agricultural Botany and Plant Pathology at the College of Agriculture, and to supervise the teaching of Biology to the Students.

Three papers were written by the Plant Pathologist ; one on the diseases of sugarcane in the island, for the Golden Book to be published by the Mauritius Chamber of Agriculture, in connection with the forthcoming centenary of its institution, and two others on plant diseases, for presentation to the VIIIth Congress of the International Society of Sugarcane Technologists to be held in the British West Indies in April, 1953.

Acknowledgment

The opportunity is taken for tendering thanks to the Commonwealth Mycological Institute for the identification of the pathogens concerned in many of the diseases mentioned in this report.

G. Orian,
Plant Pathologist.

Chemical Division

Soils

A soil survey was undertaken at Rodrigues. Samples of soils and subsoils collected from different parts of the Island were analysed. The results are given in Table I on the following page. These soils present the characteristic feature of the ' red soil ' generally found in Mauritius in dry districts. Their p.h. values approximate to neutrality.

Their potash and phosphate status respectively are quite normal compared with Mauritius soils of this type, i.e., they present good texture but are on the whole deficient in potash and phosphoric acid:—

TABLE I

MECHANICAL ANALYSIS

	St. Gabriel		*Oyster Bay (leased Land)*		*Oyster Bay Expt. Station (Plot F)*		*La Ferme*		*Bois Noir Malgache*		*Nouvelle Decouverte*
	Soil 8"	*Subsoil 12"*	*Soil 4"*	*Subsoil 7"*	*Soil 6"*	*Subsoil 10"*	*Soil*	*Subsoil*	*Soil*	*Subsoil*	*Soil*
Stones and Gravel	2·3	—	7·2	38·7	31·1	10·0	1·0	0·5	1·0	3·4	5·1
Coarse sand	1·9	1·0	3·2	4·1	6·6	3·5	1·1	0·9	2·8	2·1	2·0
Fine Sand	20·3	3·9	19·2	23·9	13·3	12·2	16·1	12·7	20·1	19·4	28 4
Silt	30·3	17·2	28·5	31·6	21·9	22·3	13·4	15·7	23·1	26·8	21·2
Clay	42·0	74·2	47·0	38·2	56·7	62·3	68·1	72·4	51·0	52·0	40·0
Organic Matter	3·5	2·2	3·6	2·7	2·6	1·4	3·2	1·2	30·7	2·9	5·7
Loss in Solution	1·9	1·4	1·4	1·2	1·4	1·2	1·0	0·9	2·3	2·2	3·4

CHEMICAL ANALYSIS

Combined water	12·0	12·9	11·0	10·5	10·1	11·3	11·4	11·8	11·8	11·8	10·5
Organic carbon	2·00	1·27	2·10	1·54	1·52	0·80	1·87	0·68	2·17	1·68	3·29
Nitrogen	0·18	0·12	0·24	0·16	0·17	0·10	0·19	0·085	0·18	0·17	0·28
C/N Ratio	11·10	10·6	8·8	9·6	9·0	8·0	9·8	8·0	12·1	9·9	11·8
P_2O_5 soluble in conc. HC L ...	0·20	0·15	0·16	0·16	0·16	0·10	0.20	0·18	0.15	0·14	0·44
K_2O (soluble in conc. HC L) ...	0·125	0·113	0·199	0·151	0·133	0·080	0·096	0·065	0·13	0·11	0·19
P_2O_5 (Truog)	0·0050	0·0023	0·0045	0·0029	0·0084	0·0035	0·002	0·0013	0·0031	0·0011	0·0082
Exchangeable K_2O ...	0·048	0·015	0·082	0·069	0·045	0·035	0·035	Nil	0·028	Nil	0·055
pH	6·4	6·0	6·5	6·7	6·8	6·8	6·4	6·8	6·0	6·2	6·3

Phosphatic Guano

Samples of phosphatic guano from Rodrigues collected from different places of the Island were analysed. The samples from " Plaine de Corail " were on the whole poor in P_2O_5, figures ranging from 1·34 per cent to 1·75 per cent. Samples from Gambrani Island were slightly better, figures ranging from 2·17 per cent to 10·44 per cent.

Essential Oils

(a) Vetivert Oil. Samples of roots from plants grown on sandy soils of " Trou d'Eau Douce " were distilled, the amount of oil collected was found negligible.

(b) Geranium Oil. Samples of leaves from plants grown at Barkly Experimental Station were distilled ; no oil was obtained.

(c) Peppermint Oil. Samples of *" mentha piperita "* grown at Barkly Experimental Station were distilled, the crude distillate obtained was sweetly perfumed but contained not a trace of oil.

Edible Oils

(a) Illipe Oil. Samples of illipe nuts *(Bassia)* from plants grown in Black River district have shown an oil content of 36 per cent (by pressure): The Soxhlet extraction gave the high figure of 60·7 per cent.

(b) Coconut Oil. Fresh kernels of the *Pemba* variety with a moisture content of 46·6 yielded by extraction with petroleum ether 27·36 per cent of oil.

Evaporator Scales

A new process of treating cane juice by the use of sodium carbonate as neutralising agent, known as the " Oganesoff Process," was tried during the year under review, for the first time, on two sugar estates. The composition of the scales deposited on the metal heating tubes of the multiple-effect evaporator was determined, the figures are worth recording: two samples (A and B) were analysed.

TABLE II

%	*1st Vessel*		*2nd Vessel*		*3rd Vessel*		*4th Vessel*	
	A	*B*	*A*	*B*	*A*	*B*	*A*	*B*
Moisture	8·82	4·91	7·53	2·97	8·86	3·99	8·47	3·57
Ash	64·48	62·20	67·11	69·23	63·68	68·55	71·67	69·04
Organic matter... ...	26·70	32·89	25·36	27·80	27·46	27·46	19·86	27·39
Ash Analysis								
SiO_2	0·54	4·22	6·24	14·20	24·35	32·46	10·84	18·20
Fe_2O_3	60·73	81·12	33·57	76·50	49·91	53·13	33·35	42·96
Al_2O_3								
CaO	15·54	6·39	18·70	4·15	19·27	6·69	22·37	3·89
MgO	3·61	1·43	3·46	1·31	3·29	2·36	2·37	1·75
P_2O_5	11·65	41·02	20·66	29·98	24·52	23·41	13·25	20·33
SO_3	1·78	1·43	7·59	1·66	11·02	2·76	18·75	1·90
Cu	1·07	2·73	0·47	2·45	1·31	1·83	0·44	1·09

Hecogenin Extraction

A promising raw material for the partial synthesis of the new drug "cortisone" has been found to occur in the leaves of the sisal plant *Agave sisalana,* Perrine.

Experiments have been started to investigate the possibility of the occurrence of hecogenin in sisal plants cultivated in Mauritius.

Leaves of Mauritius Hemp *(Furcraea gigantea)* will also be examined for the presence of this valuable substance.

Meals

At the request of the Sugar Technologist, the following samples of meals were analysed:—

TABLE III

	Rice polishing	*Rice Bran*	*Bagacillo*
Moisture	12·8	15·0	15·00
Ash	10·1	10·7	2·62
Ether extract	10·5	8·1	0·54
Protein	13·1	12·6	2·01
Fibre	7·2	9·8	33·87
Carbohydrates	46·3	43·8	45·96

Milk

The quarterly analyses of samples of milk from the Government Dairy were performed as usual. The average figures are satisfactory.

	Total solids %	*Fat %*
Morning	13·53	4·84
Evening	12·42	3·74

The series of individual test were also performed. The highest figure recorded was 8 per cent and the lowest 2·5 per cent.

Routine Analysis

Four hundred and ninety-eight samples were received involving six hundred and seventy-seven determinations.

The preparation and standardisation of acids and alkalis solutions for estates was carried on as usual.

Staff

The Scientific Assistant was transferred to the Agricultural College as Lecturer in Chemistry in February.

The Chemist acted as Officer in charge of the Control of Fertilizers of the Supplies Control Department, and, on the departure on leave of the Sugar Technologist, was appointed Chairman of the Sugar Industry Reserve Fund and member of the Sack Factory Board.

R. LINCOLN,
Chemist.

Engineering Division

Activities and Staff

The former Sugar Technological Division, now styled Engineering Division, has been enlarged in order to cope with the increased programme of activities.

The work now includes the control of alcohol and molasses for export and research work on sugarcane bye-products and aloe fibre decorticators.

The following new posts have been created: —

One Chemical Engineer
One Assistant Chemical Engineer
One Scientific Assistant

Investigations

Work on Sugar Technology was hampered by a temporary shortage of staff.

An experiment was started at Mon Désert Sugar Factory by the Sugar Technologist with a view to decreasing the purity of the final molasses, and at the same time facilitating other manufacturing processes, by addition of soda ash to the syrup at the rate of 125 grams per ton cane. At the beginning of the crop good results were obtained by this treatment but towards the middle of the crop troubles were encountered in various departments notably when centrifugalling. Consequently, the rate of application was decreased to 60 gm./ton cane (the purity of the soda ash then added being 90 per cent) thus adjusting the pH of the defecated juice to 6·7 and that of the resulting syrup to 6·9. It was then noticed that molasses purity which was at the beginning 37·9° had dropped to 36·8°, representing a decrease of about 1° in purity, and that the work in the various departments had been considerably improved.

This drop of 1° in purity represents for a production of 5,000 tons of molasses a saving of some Rs. 20,000 (£1,500), which is very attractive apart from the other beneficial effects derived from the application of this product.

This experiment will be resumed on a larger scale during the coming crop.

Milling

Five milling tests and one Brix test were performed during the year under review. After careful investigation of the results obtained, suggestions were made to the factory managers, which resulted in a considerable improvement in milling.

Factory Data

The control of the factory figures of the twenty-seven factories which operated during the year was carried out as usual and " Contrôle Mutuel " sheets were compiled and distributed fortnightly to millers.

Final figures for the 1952 crop have been received from the above factories and the compiled results for the last six crops are shown in the accompanying table.

The highest production of sugar for a factory amounted to 36,400 metric tons and the lowest 7,600 metric tons.

Average Crop Results 1947-52

Year	Sucrose % cane	Fibre % cane	Mill extraction	Sucrose in sugar % cane	Reduced boiling house recovery	Boiling house efficiency	No. of crushing hours per day
1947	14·37	12·5	94·9	12·26	87·8	98·7	18·2
1948	14·31	12·1	94·8	12·22	88·1	98·8	19·4
1949	14·33	12·0	94·7	12·19	87·7	98·5	19·8
1950	14·14	11·8	94·8	12·05	88 5	99·0	19·9
1951	13·03	11·8	94·6	10·94	88·2	98·6	19·3
1952	13·26	11·8	95·0	11·26	87·9	98·0	18·6

Cane Wax

Research work on the fat and wax content of scums is continuing and a small pilot plant has been erected. Extraction is effected using petrol as solvent followed by purification with 94°G.L. alcohol. The products obtained so far are too dark in colour, but attempts are being made to obtain a better wax. An average of 3·8 per cent wax and 4·0 per cent fat were found in scums from Medine Factory.

Alcohol

Export of alcohol ceased for a few months during the year, owing to lack of demand from the United Kingdom, but was resumed in October. Four million four hundred and ninety seven thousand (4,497,000) litres of 94°G.L. alcohol were exported in steel drums of 200 litres capacity, and 471 samples were tested and graded prior to exportation.

In the distilleries there is a marked tendency towards modernisation and improvement. One distillery has erected a new Barbet Type B plant capable of an output of 8,000 litres of 96–97°G.L. rectified spirits per 24 hours while two other distilleries have had considerable modifications made to their rectification columns.

Hisbiscus cannabinus

An experimental plot at Richelieu was planted in December 1951, with Kenaf seeds from Nigeria and harvested 110 days afterwards. Climatic conditions were very unfavourable and a yield of 10–12 tons of green plant per acre was obtained, with a dry fibre content of 4 per cent. Existing decorticators as designed for Mauritius Hemp proved to be unsuitable for fibre extraction from this plant, the minimum industrial losses being of the order of 50 per cent. Retting for 18 days in water gave a lustrous fibre and there was no fibre loss.

Hardening of Raspador Blades

A standard Raspador was fitted with scraper blades previously hardened by water quenching from 900°C and their performance compared with similar untreated blades on similar machines working under the same conditions. After 3 months' continuous service, scrapping with these blades is as clean and efficient as with new blades. The untreated blades have to be re-filed and readjusted every 3 to 4 weeks.

Automatic Raspador

Tests were carried out at Tamarin on a standard Raspador fitted with an automatic feeding device. Results showed that fibre quality was unaffected but a butt of 3" was left undecorticated, representing a fibre loss of 5 to 8 per cent. This was however compensated by a saving of about 6 per cent in the fibre lost in the brushing machine and by its capacity being doubled.

Robey Pilot Decorticator

Tests carried out on the Robey Pilot Decorticator showed a loss of fibre of 22 per cent in the residue and of 16 per cent in the undecorticated butt. However, after minor modifications fibre loss in the residue was reduced to 18 per cent. Work is still continuing on this machine.

Automatic Humbert Decorticator

A Humbert Decorticator fitted with an automatic feeder has been erected at Richelieu. With the usual slanting scraper blades, decortication by this machine was incomplete. After modification of these blades the machine is now working satisfactorily.

Manufacture of Animal Feedingstuffs

The manufacture of Animal Feedingstuffs was carried on as usual at the Richelieu Maize Mill. Maize flour, cottonseed cake, flour sweepings, oats flour, beans, dholl, poonac, molascuit, groundnut flour and wheat bran were used in the mixture. Production for the Calendar Year 1952 amounted to 605 tons.

The Maize Mill building has been extended and a new Store built. Machinery for the preparation of concentrate cubes and pellets is expected shortly.

Processing of Groundnuts

Ninety nine (99) tons of groundnuts were purchased from planters and 117 tons received from the Granary. These were decorticated and dried. One hundred and fifty two (152) tons of shelled nuts were obtained and sent to Innova Oil Mill for oil extraction.

Yeast Factory

The manufacture of yeast tablets from distillery residues has been discontinued and tablets are now prepared from food yeast powder imported from Jamaica. Two additional Manesty tablet machines on loan from the Education Department were installed in the factory.

Demand for yeast tablets from the public and Government Departments increased appreciably and the production for the year was 15,700,000 tablets.

Animal Feedingstuffs

Manufacturing account for the year ended 30th June 1952

Dr.						Cr					
1951	*Rs.*	*c.*	*£.*	*s.*	*d.*	*1952*	*Rs.*	*c.*	*£.*	*s.*	*d.*
July 1st						June 30th					
To stock ...	109,283	50	8196	5	3	By Stock ...	48,209	67	3,615	14	6
1952						Cost of production ...	197,555	24	14,816	12	11
June 30th											
Purchases... ...	103,883	54	7791	5	4						
Wages	11,349	79	851	4	8						
Electricity ...	2,522	48	189	3	8						
Transport ...	1,693	50	127	0	2						
Hardware ...	12,711	44	953	7	1						
Aloe thread ..	320	09	24	0	5						
Coal	4,000	57	300	0	10						
TOTAL ...	245,764	91	18,432	7	5	TOTAL ...	245,764	91	18,432	7	5

Trading account for the year ended 30th June 1952

1952	*Rs.*	*c.*	*£.*	*s.*	*d.*	*1952*	*Rs.*	*c.*	*£.*	*s.*	*d.*
June 30th						June 30th					
To cost of production ...	197,555	24	14,816	12	11	By sales to particulars	200,649	16	15,048	13	9
Gross Profit to P. & L. a/c ...	31,114	63	2,333	11	11	sales to Gvt. Depts. ...	27,623	25	2,071	14	10
						Crushing of dholl poonac, salted fish etc. ...	397	46	29	16	3
TOTAL ...	228,669	87	17,150	4	10	TOTAL ...	228,669	87	17,150	4	10

Profit and Loss Account for the Year ended 30th June 1952

1952	*Rs.*	*c.*	*£.*	*s.*	*d.*	*1952*	*Rs.*	*c.*	*£.*	*s.*	*d.*
June 30th						June 30th					
To Insurance ...	714	50	53	11	9	By Gross Profit from Trading a/c	31,114	63	2,333	11	11
Public Works (repairs to roofing)	2,748	50	206	2	9						
Railway	932	32	69	18	6						
Travelling ...	1,489	10	111	13	8						
General expenses	324	71	24	7	0						
Repairs	93	00	6	19	6						
Planks, timber etc	217	14	16	5	7						
Refund on contract tickets ...	63	00	4	14	6						
C/Agents (amount paid)	11,134	39	835	1	8						
Salaries and Bonus	5,902	62	442	13	11						
Allowances ...	2,116	00	158	14	0						
Net Profit ...	5,379	35	403	9	1						
TOTAL ...	31,114	63	2,333	11	11	TOTAL ...	31,114	63	2,333	11	11

Processing of Groundnuts

Trading account for the Year ended 30th June 1952

1952 June 30th	Rs. c.	£ s. d.	1952 June 30th	Rs. c.	£. s. d.
To wages and War Bonus	9,083 42	681 5 2	By processing of groundnuts: amount claimed ...	16,564 78	1,242 7 1
Transport	350 00	26 5 0			
Coal	238 00	17 17 0			
Cartage (coal) ...	35 00	2 12 5			
Repairs	472 50	35 8 9			
Lab. expenses ...	50 00	3 15 0			
Electricity	150 00	11 5 0			
Hardware	758 89	56 18 4			
Gross profit to P. and L. a/c ...	5,426 97	407 0 5			
Total ...	16,564 78	1,242 7 1	Total ...	16,564 78	1,242 7 1

Profit and Loss account for the Yearr ended 30th June 1952

1952 30th June	Rs. c.	£ s. d.	1952 30th June	Rs. c.	£. s. d.
To Refund of Contract tickets ...	105 00	7 17 5	By Gross Profit from Trading account ...	5,426 97	407 0 5
Travelling	252 70	18 19 2			
Railway	196 15	14 14 2			
Timber, planks etc. ...	12 95	0 19 5			
Salaries and War Bonus	350 00	26 5 0			
Allowances	126 00	9 9 0			
Net Profit	4,384 17	328 16 3			
Total ...	5,426 97	407 0 5	Total ...	5,426 97	407 0 5

Yfast Factory

Manufacturing account for the Year ended 30th June 1952

1952 30th June	Rs. c.	£. s. d.	1952 30th June	Rs. c.	£. s. d.
To cost of Jamaican powder	10,880 21	816 0 4	By cost of production	24,583 53	1,843 15 4
Firewood	990 00	74 5 0			
Wages and War Bonus	6,766 71	507 10 1			
Transport	3,827 00	287 0 6			
Manufacturing expenses	685 00	51 7 6			
Hardware	948 61	71 2 11			
Coal	298 00	22 7 0			
Electricity ...	188 00	14 2 0			
Total ...	24,583 53	1,843 15 4	Total ...	24,583 53	1,843 15 4

Trading account for the year ended 30th June 1952

1952 June 30th	Rs.	c.	£.	s.	d.	1952 June 30th	Rs.	c.	£.	s.	d.
To cost of Production ...	24,583	53	1843	15	4	By sales to particulars	862	50	64	13	9
To stock of yeast tablets 1.7.51 ...	8,660	00	649	10	0	By sales to Education Department	15,845	00	1188	7	6
To Gross Profit to P. & L. a/c..	21,545	97	1615	18	11	By sales to other Government Departments	22,095	00	1657	2	6
						By stocks of yeast tablets 30.6.52	15,987	00	1199	0	6
TOTAL ...	54,789	50	4109	4	3	TOTAL ...	54,789	50	4109	4	3

Profit and Loss account for the year ended 30th June 1952

1952 June 30th	Rs.	c.	£.	s.	d.	1952 June 30th	Rs.	c.	£.	s.	d.
To Railway ...	130	93	9	16	5	By Gross Profit from Trading account	21,545	97	1615	18	11
To Timber, planks, etc. ...	16	18	1	4	2						
C/Agents (amount paid)	3,028	55	227	2	10						
General Expenses	220	41	16	10	7						
Salaries and War Bonus	440	00	33	0	0						
Allowances ...	158	00	11	17	0						
Net profit ...	17,551	90	1316	7	11						
TOTAL ...	21,545	97	1615	18	11	TOTAL ...	21,545	97	1615	18	11

E. LIMFAT,
Officer-in-Charge, Engineering Division and Manager Maize Mill.

Land Settlement Division

Pilot Land Settlement Scheme

Development Progress (a) *Petit Sable Smallholding Scheme*

Tenants. All the tenants have now been established on this scheme and comprise the following categories:—

10 residential smallholdings.
8 bare land smallholdings.
39 allotments.
142 onion plots.

The reserve fodder area on the mountain slopes reaching from the storm drain bounding the cultivated area to the mountain ridge is being leased for fodder cutting to those tenants who require fodder for stock.

The Smallholders' Co-operative Credit Society has been functioning satisfactorily and tenants requiring loans through this medium have been able to obtain them. All tenants have obtained satisfactory returns from sugarcane and food crops and their financial position may be termed good.

Works. The construction of roads has been proceeded with and these are now nearing completion. The construction of bridges and culverts was held up for a period but this work is now proceeding. It was found necessary to straighten the course of the main stream and the removal of a difficult bend has reduced the liability of the surrounding land to flooding during periods of heavy rains. Exceptionally heavy periods of rain and a cloud burst during recent weeks have made special work on the waterway necessary to prevent flooding. The provision of gravel traps on the upper stream has assisted in delaying the silting up of the stream and the bridges at the main road. The bridges and culverts at the public road both at Petit Sable and Grand Sable will require to be cleared at least once a year by the Public Works Department to enable drainage to function satisfactorily on the land settlement area.

Difficulty was experienced in obtaining a Contractor prepared to erect dwelling houses on smallholdings at Petit Sable because of the remoteness of the area and the problem of transporting materials and workmen. The cost of the house was also higher than it would have been in an urban district.

Five of the smallholding houses are in process of construction and two are almost ready for occupation. Sites have been levelled for an additional three houses. Better progress in the work is now being made by the Contractor. The planting of trees on about 30 arpents (31·2 acres) of the steep slope will be carried out during the coming season and besides providing a soil retaining belt will provide shade grasses for stock.

(b) Terre Rouge. A total of 269 arpents (279·76 acres) of land has been purchased and a further area of 4 arpents (4·16 acres) is in process of being acquired through the Curator Accountant. One hundred and eighty-seven (187) arpents (194·48 acres) have been cleared or partially cleared by the mechanical unit and this area has been permanently subdivided into 67 residential and bareland holdings.

The Mechnical Unit is recommencing clearing works on the untouched scrub area in January 1953 for a period of two months. Final clearing operations on the scheme will take place in July and August, 1953.

Over 600 applicants have applied for smallholdings in the Terre Rouge area. These applicants have been interviewed and reported upon by the staff of the Land Settlement Office. The Land Settlement Selection Committee has been interviewing the applicants in their various categories and making recommendations as to their suitability for settlement. The work of this committee is continuing.

Tenants selected for permanent settlement are as undernoted: —

19 residential holdings	... ...	4 arpents (4·16 acres)
6 bareland holdings	... ...	3 arpents (3·12 acres)
31 bareland holdings	... ...	2 arpents (2·08 acres)

Owing to difficulties in the acquisition of land, there has been delay in the construction of the irrigation canal which will provide irrigation water for the Land Settlement Scheme and it is now expected that work on this canal will be commenced by Pubilc Works Department in January, 1953, and that it will be completed in February, 1954.

The tenants will be unable to grow a crop of sugarcane until irrigation water is provided and meanwhile they are able to carry out the cultivation of food crops only from summer rains, and to take the opportunity of effecting various improvements on their holdings.

In addition to carrying out a 10 weeks' survey of the line of the irrigation canal outwith, the Land Settlement Scheme on behalf of the Public Works Department, the Land Settlement Surveyor and his Assistant have prepared a detailed contour plan of the Land Settlement area showing the line to be taken by the main irrigation canal in order to make possible the irrigation of every part of the Settlement. This plan when completed was passed to the Public Works Department Engineer in charge of the construction of the canal with a view to expediting the carrying out of the work on the irrigation canal.

Construction of dwelling houses on the residential smallholdings will be proceeded with during the year.

The introduction of a domestic water supply will be dependent upon suitable piping being received from overseas but it is expected that the materials will be available before the houses are completed. Arrangements are being made for the formation of a smallholders Cooperative Credit Society on the Terre Rouge Land Settlement Scheme.

This Scheme is well served with public roads but additional road traces are being made with the bulldozing equipment to give satisfactory access to all parts of the Scheme.

(c) Richelieu. Legal proceedings have been pending against a number of illegal tenants on land at Richelieu who were in occupation of land without having signed a lease and without having paid rent since January, 1952. Twenty tenants out of 32, however, have now come forward to sign the necessary agreement and have paid rent for the period 1st January, 1952 to

31st December, 1952, and so have regularised their position. It is expected that the remaining tenants will come forward in the course of the next few days.

It is hoped that no further difficulties will come in the way of developing Richelieu into a smallholding scheme as from the 30th June, 1953.

This scheme will consist of 10 residential smallholdings with a supporting allotment scheme.

General

Staff. A Second Grade Clerk was appointed to the staff in October, 1952.

In reviewing the plan of Land Settlement as set out in the Secretary of State's memorandum on the Pilot Land Settlement Scheme it has been found necessary in practice to vary this somewhat. Reports on applicants by officers of the Land Settlement Staff and interviews before the Land Settlement Selection Committee have brought out the fact that the better type of applicants find their financial resources and capabilities suited to a residential or bare land holding of not more than 4 arpents (4·16 acres). A large number of applicants are found on the same basis to be suited to 2 arpents (2·08 acres) holdings or areas of 1 arpent (1·04 acres) only. Those who lack the necessary finance for a larger area are settled on allotments of $\frac{1}{2}$ arpent (0·52 acre) for food crop growing.

It is found that on the standard of living which they expect, a family can obtain what is necessary from the economy of a 4–arpent (4·16 acres) holding provided it is properly worked and managed. The standard of living in almost all cases is definitely better than that to which they have previously been accustomed.

At meetings of the Land Settlement Advisory Committee during the year, subjects discussed included housing, water supplies, financial and economic aspects of land settlement schemes, Co-Operative Settlements, Co-Operative Credit Societies, training for inexperienced applicants and the selection of suitable tenants for smallholding settlements.

The Land Settlement Advisory Committee made three visits during the year ; one visit to inspect a model dwelling house suitable for a smallholding, and two visits to land settlement schemes in process of development.

Flat Island

The three years experimental period for the rearing of sheep and goats at Flat Island terminated early in 1952, and after consideration, it was decided that, because of the difficulties of access to the island, caused by rough seas, conditions prevailing for a large part of the year, the scheme should be closed ,and this was done in April, 1952.

J. Bett,
Land Settlement Officer.

Legislation

The following Ordinances, Proclamations and Government Notices were issued during the year:—

Ordinance No. 21 of 1952—The Tea Industry Control (Amendment) Ordinance, 1952: To amend the Tea Industry Control Ordinance, 1949.

Ordinance No. 24 of 1952—The Tobacco Production and Marketing (Amendment) Ordinance, 1952.

Ordinance No. 25 of 1952—The Tobacco Consolidation (Amendment) Ordinance, 1952.

Ordinance No. 57 of 1952—The Tea Industry Control (Amendment No. 2) Ordinance 1952: Further to amend the Tea Industry Ordinance 1949.

Ordinance No. 72 of 1952—The Aloe Fibre Industry (Development) Ordinance, 1952—To make loans for the Development of the Aloe Fibre Industry.

Ordinance No. 76 of 1952—The Sugar Industry Reserve Fund (Amendment) Ordinance 1952—To amend Ordinance No. 3 of 1948.

Proclamation No. 7 of 1952—To prohibit the importation into Mauritius of Maize from certain parts of Africa.

Proclamation No. 18 of 1952—To proclaim the rate of export duty leviable on the sugars of the 1951 crop.

Proclamation No. 27 of 1952—To revoke Proclamation No. 20 of 1930 which prohibited the exportation of Fourcroya (Mauritius Hemp).

Government Notices Nos. 3 and 238 of 1952—Regulations made by the Governor-in-Council under Section 33 of the Tea Industry Control Ordinance, 1949.

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